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ABSTRACT

In 1982-83, a study was conducted to investigate the technical skills and knowledge needed for employment in entry-level secretarial/clerical occupations in the business community of Allegheny County, Pennsylvania, and to determine the current and perceived future status of word processing approaches in local firms. A survey instrument was mailed to 216 of the 433 members of the Monroeville Area Chamber of Commerce soliciting information on the characteristics of the firms; requirements of entry-level employees in the areas of basic office skills, ability to use various types of equipment and related systems, and typewriting and shorthand skills; current status of word processing; and 5-year projections of the use and application of word processing equipment. Study findings, based on a 77.7% response rate, included the following: (1) of the respondents, 68% were from small firms and 62.7% were from service industries; (2) of the 114 respondents who reported employment of secretarial/clerical personnel, 81.6% indicated the existence of a secretary job category and 58.3% a word processing job category within the firm; (3) the skill considered most important in each of four job categories (i.e., word processing operator, secretary, stenographer, and clerk/typist) was listening/following directions; and (4) 17.6% of the respondents indicated they were already using word processing equipment, and 24.2% indicated that they would be within the next 5 years. The survey instrument and a literature review are included. (HB)

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JC 840 033

A MAJOR APPLIED RESEARCH PROJECT
PRESENTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR
THE DEGREE OF DOCTOR OF EDUCATION

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Dolores M. Tomlan

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Abstract of a Major Applied Research Project Presented to
Nova University in Partial Fulfillment of the Requirements
for the Degree of Doctor of Education

AN IDENTIFICATION OF THE WORD PROCESSING SKILLS AND KNOWLEDGE NEEDED BY ENTRY-LEVEL SECRETARIAL/CLERICAL EMPLOYEES AS PERCEIVED BY MEMBERS OF THE LOCAL BUSINESS COMMUNITY

by

Dolores M. Tomlan

May, 1983

This study was designed to investigate the relevancy of the secretarial/clerical curriculum in the Department of Office Administration of Boyce Campus of the Community College of Allegheny County. A survey of the needs of businesses in the service area--the eastern suburbs of Pittsburgh--was conducted. The ultimate purpose of the project was to ensure that student clients are equipped with pertinent office skills, especially since demands may be changing because of inclusion of word processing and automated systems approaches.

The basic research questions for the survey were: What technical skills and knowledge are currently needed for employment in entry-level secretarial/clerical occupations in the local business community? What is the current and perceived future status of word processing approaches in the offices of the service area?

For collection of the data, a mail questionnaire was developed, validated, field tested, and revised prior to administration to the sample. The instrument was organized into six major sections, two of which

listed 56 selected skills and equipment/systems representing cognitive and psychomotor domains involved in the major manipulative, computation, and language skills needed for job performance in each of these four job categories: word processing operator, secretary, stenographer, and clerk/typist. The questionnaire is appended.

A random sample of the 216 units representing 50% of the population of 433 members of the Monroeville Area Chamber of Commerce was selected for the survey. After disqualification of ineligible units during the mailing process, 153 returns yielded a response rate of 77.7% which was based on the revised sample of 197 units. Subtraction of 39 of these returns, which were unusable for three sections because of not meeting eligibility criteria, resulted in a usable response rate of 72.2% for those sections.

Data analysis from the returned instrumentation was descriptive, and the Nie et al. SPSS program was used to provide frequencies, percentages, mean scores, and standard deviations. Intention was to point out practical significance and to convey the general thrust of the findings.

The results of the analysis produced data regarding typewriting and shorthand rates, as well as validated sets of competencies by rank order for each of the four job categories. In addition to evidence that respondents did see the four job categories as relevant, evidence of frequency of these categories was also produced. The results also indicated that although word processing and automated office approaches are not yet widespread in the service area, trends do suggest observable movement in this direction. Findings also revealed that the large companies are much more involved with word processing approaches than the small organizations; however, large companies are far fewer than smaller companies in the service area.

Implications are that trends toward word processing and automating the office have begun to change some job skills requirements for entry-level secretarial/clerical employees in local offices, especially in the word processing category. However, at this time, the emphasis in the three traditional job categories is still on the traditional skills and equipment/systems for processing clerical office work. It appears therefore that the movement toward automation is an evolution rather than a revolution in the service area and that most of the office systems are changing gradually rather than radically.

Recommendation is that the faculty of the Department and other responsible parties at the institution evaluate those office skills and knowledges that have been identified in the results of the research so that informed decisions regarding the curriculum can be made. Generally, the services of the institution regarding preparation of secretarial/clerical workers should be twofold: a) to continue to serve the tradition-oriented offices which are currently the majority group and b) to provide learning experiences that are paced with developments in the automation-oriented offices which are now in the minority but which are expected to grow in number and in degree of involvement. In order to perpetuate relevancy, there should be similar future periodic validations of competencies by the community and/or in follow-up studies of graduates.

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I. INTRODUCTION

Background and Significance

Boyce Campus of Community College of Allegheny County has taken a proactive, positive posture toward coping with the challenge of preparing workers for today's office and the technologically changed office of the future. The Department of Office Administration is meeting the basic challenge to business educators of accepting change and of understanding the role of word processing in business and how it relates to the classroom, as recommended by Turner (1981).

The intention of the institution is to update the training of secretarial/clerical students by finding out which word processing skills in addition to the traditional office skills are expected by the business community. The intent is to continue the process of expanding and/or updating the curricular offerings and the learning facilities in the Department on the basis of the findings of this study. Such improvements are currently supported by Postsecondary Vocational Education funding through the Commonwealth of Pennsylvania (Tomlan, 1982). This investigation is in accord with the general principles stated by Roueche and Mayhew in the Nova Study Guide for Curriculum Development (1979, p. 12)--realism, something for everyone, adequacy of administrative support, faculty capabilities, not too radical a departure from tradition.

In this study, as was the case in Dennee's (1981) doctoral study, word processing offerings refer to any unit, course, or program in word processing. The integration at Boyce Campus of the word processing approach in preparing secretarial/clerical clients for the workforce has evolved over the last three years. The format of the departmental offerings had been adjusted to include word processing degree and certificate programs and specific word processing courses. The WP programs do not require shorthand study but do include machine dictation/transcription study. This adjustment of the curriculum was via internal needs assessment of the Beta and Zeta modes described by Kaufman and English (1971, p. 69) and started with the "givens" of the institution; i.e., the assessments operated within the context of the organization. At that time, according to the Boyce Campus Placement Office, about 20% of the requests by employers for secretarial/clerical workers specified WP equipment operation competency. These previous assessments also included a survey of the community colleges in Pennsylvania to determine the status of word processing in these colleges (Tomlan, 1980).

At that time, changes in departmental image and titles were also addressed. The Department changed its name from Secretarial and Office Science to Office Administration. Modification in the titles and composition of the program areas were addressed. The name of the Secretarial Science degree program (shorthand study required) was changed to Secretarial Skills. In the next year, in order to complete the package of options for prospective office employees, program additions to the Department's curriculum were identified and developed (Tomlan, 1981). In addition to including one-year certificate programs corresponding to the two-year degree programs in the Department, a basic clerical degree program called Clerical Specialist and its corresponding certificate program called Clerk/Typist were introduced. The clerical programs do not require shorthand or transcription studies. The ultimate result was that departmental organization of courses of study included four two-year degree programs with corresponding one-year certificate programs, thereby creating career preparation ladders. Table 1 displays the organization.

Table 1

Programs of the Department of Office Administration

Degree	Certificate
Secretarial Skills	Stenography
Word Processing Skills	Word Processing
Clerical Specialist	Clerk/Typist
Medical Office Assistant	Medical Transcription

This ladder arrangement helps to fill the needs of students who are striving to develop skills for office employment as quickly as possible and at the same time to meet the need of the business community for filling available jobs. In addition to the ease of transferring credits from the certificate programs to the degree programs, the career preparation ladders also allow a student to move laterally from one program to another within the Department without losing any earned credits. A promotional brochure describing the Department's reorganized instructional program was developed (Tomlan, 1981).

Eventually upon reviewing existing facilities, however, inadequacy of hardware became clear not only for the recently reviewed curricula, but also for any further expansion of the instruction. Because of the limitation of text-editing hardware facilities, which then consisted of two printed-copy electronic typewriters, the word processing course, which had recently been initiated and which was attached to an existing advanced typewriting course, was not completely satisfactory. Since students do want "hands-on" experience, sufficient interest had been generated to expand this offering regarding automatic typewriter operations. Without additional hardware, however, curriculum expansion would not be justified, for as Turner (1981) points out, "several keyboards should be available to justify a separate course in automatic typewriter operations" (p. 25). Hence a drive ensued for allocation of resources. This drive led to submitting the proposal which resulted in the grant for federal funding of hardware through the Commonwealth of Pennsylvania, in response to the expressed needs of faculty and students for additional hardware. Consequently one existing lab-classroom within the Department's compound of rooms was equipped with a Honeywell Office Automation System consisting of 15 CRTs (word processing terminals), 4 letter-quality printers, and 4 sheet feeders. The existing Honeywell Level 6 System at Boyce Campus was upgraded to run the Office Automation System.

Although it is understood that learning should be student-centered, in the case of business education, it should also be industry-oriented. This research project therefore is in accord, for it is providing the added benefit of establishing linkages and/or expanding linkages with the local business community. Lauth, President of the Community College of Allegheny County in November of 1981, during a seminar on marketing held for all full-time faculty and staff of the system, indicated the public is reviewing and scrutinizing education because of "Reaganomics."

He indicated that one of the objectives of the CCAC in the next five years is to build partnerships through linkage with private industry. By surveying the business community and by receiving the grant for hardware, the Department is consistent with two of the ways Lauth cited to promote proactive quality enhancement of student learning: to develop community resources and awareness and to develop closer ties with state and county and federal grant programs. He said:

> The College will continue to develop a unified public relations campaign in which we will work toward improving internal and external communications, as well as the development of community awareness. As an internal part of such a campaign, we must develop even closer and broader ties with the legislative bodies in both Harrisburg and Washington. In better marketing the College to our total constituency, the people of Allegheny County will understand better, not only who we are, but our worth to each of them socially, and most especially educationally. (Informal Abstract)

The possibility of improved relations with the business/industrial community is particularly relevant. By reaching out into the community, the institution is formally recognizing the business community as the partners they should be.

All of these factors led to this study to determine desired educational outcomes, i.e., to determine job skills requirements from community input in order to prepare students realistically for secretarial/clerical jobs in the local market. In order to be realistic, before any further curriculum adjustments are made, a state-of-the-art/market needed to be ascertained. The institution needs to know which skills the businesses in the area expect of new office employees now that the "new equipment," or word processing, is on the scene so that it can produce graduates with marketable skills. Kaufman and English (1979, p. 78) indicate that "the external needs assessment will identify the skills and knowledge which are important outside the school so that this information can be used as the basis for educational design and effort."

The following are some of the "new" office skills and equipment and related systems which the modern office worker may be expected to have because of automated office systems and word processing approaches which may have been introduced into the contemporary office workplace. For purposes of this study, they are therefore considered "nontraditional" modes: computer fluency, computer literacy, data entry, electronic filing, electronic copying and duplicating, phototypesetting, visual display (CRT) typewriter, printed-copy text-editing typewriter, computer-linked machine dictation, desk-top computer (or microcomputer), OCR (optional character reader), COM (computer output micrographics), high-tech distance telecommunications including electronic mail and message systems, electronic dictionary.

Much of the work of the writer's previous practicums has been supportive of this topic. The investigation at Boyce Campus regarding a survey of the business community for job skills expected of beginning secretarial/clerical workers has been feasible.

Statement of Problem

The ultimate goal of this study is to assure that the program completers and course-refreshed clients of the Department of Office Administration at Boyce Campus of Community College of Allegheny County have the needed office skills in order to enter the local labor market. There is a prevailing demand for workers in the clerical cluster of jobs in the evolving office of the future, but that demand may be for workers who are prepared in the "new ways"--that is, the word processing approach. The ultimate purpose of the project therefore is to facilitate the equipping of Office Administration students with employable skills that will satisfy community and business expectations in the eastern suburban Pittsburgh area in the immediate years ahead.

The problem of this study is to determine the technical knowledge and skills which are now needed by student clients as they prepare to enter specific secretarial/clerical roles or settings in local offices where demands may be changing because of word processing and automated system approaches. A related problem is to ascertain the perceptions of the local business community regarding the current and future status of word processing in their organizations. An anticipated benefit of this study is the potential for verification and/or upgrading of the curriculum in the Department of Office Administration at Boyce Campus of Community College of Allegheny County in response to the office system trends of the '80s.

One of the objectives of the American workplace is productivity improvement--in the case of this institution, the student client bound for the workplace. Harris (1982) says that Productivity (Performance) Improvement Process is a continuous and evolving process; it is not a temporary one. Recognizing this, the Department is prepared to accept further change as needed, for this institution must know that the training of prospective office employees is being conducted realistically.

Research Questions

A primary objective of the Department of Office Administration is to educate people adequately and realistically for contemporary office occupations (educational outcomes). The goal is to educate student clients for the office of the future which is evolving because of technological advances--i.e., to hone the secretarial/clerical office skills. To achieve this goal, it is crucial to know how the curriculum should be adjusted for the meaningful preparation of prospective secretarial/clerical employees for the marketplace.

What is the current and projected future status of word processing systems in the offices of the service area? Are trends toward automating the office, specifically regarding word processing approaches, changing job skills requirements for entry-level secretarial/clerical employees in the offices of the local business community? How essential are selected technical skills and knowledge to entry-level secretarial/clerical employees as perceived by management? Are there any differences between large and smaller businesses regarding the current and future usage of word processing equipment in their organizations and regarding the existence of the four secretarial/clerical job categories in their organizations? Are the traditional secretarial/clerical generic job categories of secretary, stenographer, and clerk/typist still existent in the business offices; and is the more recent, non-traditional job category of word processing operator applicable in the local office environments?

The answer to these questions will yield implications that may impact the current curricula in the Department of Office Administration at Boyce Campus of CCAC, for verification is desirable as to whether the Department is presenting relevant information and teaching relevant skills. To answer these questions, survey procedures were carried out.

Objectives

The question for the survey therefore was: What technical skills and knowledge are currently needed for employment in entry-level secretarial/clerical occupations in the local business community? A related question is: What is the current and perceived future status of word processing approaches in the offices of the service area? The objective of the survey was to answer the following subquestions regarding the entry-level secretarial/clerical employees:

1. To what extent are the four generic job categories of secretary, word processing operator, stenographer, and clerk/typist present in the service area?

2. How important are the traditional office skills?

3. How important are other "new" office skills, especially those associated with word processing?

4. What typing rates, if any, are expected?

5. Are typewritten documents produced on manual, electric, or electronic typewriters?

6. What shorthand writing rate, if any, is expected?

7. Is symbol shorthand still an expected skill in the local offices, or is there a reduced or even nonexistent demand for it?

8. Is there a demand for workers who are trained in alphabetic shorthand rather than in symbol shorthand--since alphabetic shorthand has direct word processing, data processing, and programming uses?

9. Is training in machine shorthand useful--because of its tie-in to computer transcription?

10. How important is ability to transcribe a communication recorded via machine dictation for efficient handling of correspondence?

11. Are business English skills and communications still considered important?

12. How important is operation of the traditional types of office

equipment?

13. How important is operation of nontraditional types of equipment which are associated with word processing?

14. Since word processing is being realized as a data processing application (or the reverse), should the institution require computer and data entry skills of its secretarial/clerical students?

15. What are the projections for use and application of WP equipment?

16. What preference does management have for in-service training?

Initial information about the questions regarding the effect of word processing approaches on the skills needed by secretarial/clerical employees in local offices has been received through (a) reading the professional literature, (b) attendance at professional meetings, (c) interaction with colleagues, and (d) informal exchange with office workers. As Fielden (p. 2) suggests in a publication of the International Word Processing Association, the answers to these questions may yield information towards possible further adjustment of recently modified and newly created programs, to possible creation of additional courses and curricula, and to enlightenment regarding possible expansion of facilities and hardware.

Definition of Terms

In order to contribute towards the clarity of this study, the following terms are defined:

Secretarial/clerical employees -- clerical cluster of office occupations, including any title which pertains to secretarial/clerical employment, e.g., secretary (sometimes referred to as administrative secretary), stenographer, clerk, typist, word processing operator (sometimes referred to as correspondence secretary).

Entry-level secretarial/clerical employee -- a person entering the job market with no office work experience in the secretarial/clerical cluster of jobs.

Word processing (abbreviated as WP) -- a modern communications system designed to increase productivity by combining people, procedures, and equipment through the use of machine transcribers and automatic and text-editing typewriters which speed the flow of paperwork.

Word processing operator -- a recently created job title in the business world, synonymous with correspondence secretary, which means that the employee "through the operation of text-editing equipment, specializes in typing tasks such as transcribing, typing from longhand, proofreading, and editing" (Rohrer, p. 27).

Secretary -- a traditional job title in the business world pertaining to an office worker who reports to and performs typing and nontyping tasks for one or more members of management. This position in some organizations has been reclassified as administrative in which the worker may specialize in nontyping tasks such as telephone handling, receiving visitors, making appointments, research, and record keeping.

Automatic and text-editing typewriters -- revolutionary typing process in which fundamental aspects are speed of printout, magnetic recording allowing storage of documents for as many revisions as needed (text editing), and storage of a document for printing out multiple copies.

Machine dictation -- the recording of spoken messages onto belts or discs by means of dictating machines which are also known as transcribers or voice recorders.

Transcription -- the typewritten production of spoken messages which are received (a) via machine dictation or (b) via person-to-person dictation which was taken in shorthand.

Keyboarding -- typing or entering alphanumeric data on the typewriter or some other type of hardware keyboard.

Formatting -- arranging typewritten copy attractively in the document.

Data processing (abbreviated as DP) -- a system which is often associated with the computer for processing numerical data.

Computer fluency -- ability to write and analyze computer programs (Stubbe, 1982).

Computer literacy -- ability to manipulate a computer with a preestablished program to perform desired tasks (Stubbe, 1982).

Information processing -- the evolving merger of data processing and word processing to become part of a total integrated communications network, which continues to advance with telecommunications (Policies Commission for Business and Economic Education, 1982).

CCAC -- Community College of Allegheny County, a multi-unit two-year postsecondary institution serving the metropolitan Pittsburgh area and its suburbs and comprised of a central office, four campuses--one of which is Boyce Campus--and numerous off-campus sites.

Administration Sciences Division -- A division at Boyce Campus to which the Department of Office Administration is organizationally responsible.

Department of Office Administration -- formerly (before a previous practicum) the Department of Secretarial and Office Sciences at Boyce

Campus and consisting of four degree and four corresponding certificate programs.

Word Processing Skills program -- A degree program in which no shorthand study is required but in which machine transcription studies are required. Recently introduced at Boyce Campus of CCAC (previous practicum) and which updated and replaced the former Office Science degree program by revision of the curriculum to include the word processing approach.

Word Processing Certificate -- a one-year program recently introduced at Boyce Campus (previous practicum) which is part of the Word Processing Skills ladder.

Secretarial Skills program -- a degree program at Boyce Campus which includes studies in the use of symbol shorthand.

Stenography Certificate -- A one-year program at Boyce Campus which is part of the Secretarial Skills ladder and which includes the study of symbol shorthand.

Clerical Specialist program -- A degree program recently introduced at Boyce Campus (previous practicum) which does not require shorthand or transcription studies but which requires typing and communications skills studies, including operation of automatic text-editing typewriters.

Clerk/Typist Certificate -- one-year program recently introduced at Boyce Campus (previous practicum) which is part of the Clerical Specialist ladder.

Fortune 500 -- Fortune Directory of the 500 Largest U. S. Industrial Corporations.

Fortune Second 500 -- Fortune Directory of the Second 500 U. S.

Industrial Corporations.

SPSS (Statistical Package of the Social Sciences) -- a system of computer programs which "represents nearly a decade of system design and programming and documentation on the part of the authors and others" (Nie, Hull, Jenkins, Steinbrenner, Bent, 1975, p. x).

Assumptions and Limitations

For purposes of this investigation, the following assumptions are made:

1. The population for this study, the Monroeville Area Chamber of Commerce, is representative of the businesses in the service area. The random sample of the population assured comparability of members being surveyed and members not being surveyed. The population was not stratified "a priori" in the sample, for there were a representative number of businesses in the sample from the major divisions of the community or population's characteristics, such as size of business and nature of business.

2. Findings obtained from the number of survey population who did respond are approximately the same as the findings received from a total response rate. Weisberg and Bowen (1977) indicate, "Nonresponse can be a problem, though usually those who refuse to respond do not differ too much from those who do respond (other than being less cooperative)" p. 36.

3. The service area contains potential employers of programs and/or course completers of the Department of Office Administration of Boyce Campus.

4. Jury members who were selected to validate the instrument are

experts in the field, and their competency in judging the instrument is sound.

5. The survey questionnaire and covering letters of explanation are clear and comprehensive and reflect the intent of the study.

6. All four secretarial/clerical job categories for which data were requested are generic and therefore adequately reflect the secretarial/clerical cluster of jobs in the service area.

7. The skills identified in the instrument are representative of job performance in the secretarial/clerical cluster of jobs so far as language, computation, and manipulative-type office skills and knowledge are concerned.

8. Each respondent answered the questionnaire responsibly, thereby establishing validity of response.

9. The study reflects the reliability of the instrument and of the data it generated. However, if the survey were to be repeated later either in this region or elsewhere, because of the very rapid changes in the word processing field, responses may be different. Also, modification of the instrument may be desirable to suit the contemporary scenario.

The following situations are possible limitations of this study:

1. The needs of some employers in the area may remain unidentified. Kish (1967, p. 7) says that the survey population actually achieved may differ somewhat from the desired target population, the chief difference arising from nonresponses and noncoverage. Therefore, findings and conclusions in this study are limited to the extent to which the study population reflects the population of the service area.

2. Since the respondent group is made up of individuals of various

occupational positions and backgrounds, the respondents' perceptive interpretations and ability to respond may be biased. Therefore, the validity and reliability of the data may be affected because of differences in background and knowledge of office systems operations of individuals representing the unit respondents. Parten (1966) says, "Checks on the honesty and reliability of returns are difficult to devise when the personal interviewer does not see and size up the informant" (p. 96). Mail survey procedures are considered less effective than interview surveys so far as response rate and insight regarding potential biases of respondents are concerned.

3. The questionnaire does not present a complete list of the office skills and knowledges which are required of entry-level secretarial/clerical workers. Also, no concerted effort was made to include skills in the affective domain, although some of these are inherent in the performance of the basic office and equipment skills which are listed in the questionnaire.

4. The data collected from the regional area to which the study is delimited are intended to reflect the immediate concerns of the service area of the institution. The information may not be reliable for universal generalization to areas of varying population densities and cultural environments but may be applicable in part.

CHAPTER II. REVIEW OF RELATED LITERATURE

In order to present the review of literature and research topics related to the problem, the relevant articles were organized into three categories: a) Background of Word Processing, b) Occupational Outlook, and c) Perspectives in Office Education.

Background of Word Processing

In the past decade of the '70s, word processing as an approach to improving productivity in the office has made inroads. Word processing, a systems approach "for improved business communication through the use of skilled personnel, modernized procedures, and automated equipment, is creating new jobs and changing traditional ones" (Wagoner, 1977). Word processing has changed the face of the modern office procedurally, attitudinally, and technologically.

According to Dartnell Corporation (1977), word processing is defined as "an automated system designed to cut the cost and time of the originate/dictate, check/type/retype, sign/mail/distribute, and retain cycle of producing business documents" (p. 53). Word processing is a new way to look at what has been happening in the office all along--i.e., originating, producing, reproducing, storing, and distributing the original message--but the new way goes a step further. Will and Dake (1982) elaborate:

> Word processing involves skilled clerical personnel using sophisticated technological equipment, such as electronic

> typewriters or computerized keyboarding equipment. Modern office procedures transform formerly ineffectively operated "traditional" offices into more highly productive cost-effective work environments. (p. 4)

In Scriven, Holley, Wagoner and Brown's Delta Pi Epsilon (1981) report of the national word processing research study, the term "word processing" is defined as

> a systems approach to handling the communications needs of business which generally involves: (1) a change in the method of personnel utilization providing more work specialization and improved career opportunities for secretaries while freeing managers so that they have more time to plan, organize, and coordinate; (2) the use of text-editing typewriters with magnetic recording features; and (3) the use of machine dictation equipment for recording of ideas as they originate. (p. 1)

Pibal (1980) reports that "just as data processing revolutionized manufacturing operations and accounting systems, word processing is bringing about revolutionary changes in the modern office" (p. 11). Producing typewritten words is the "word processing" part of the information process, whereas producing numerical information is the data processing part.

Cecil (1980, p. 8) indicates that in 1964 IBM led the way to revolutionize the typing process in the modern office by introducing the MT/ST (Magnetic Tape Selectric Typewriter), which in turn introduced the word processing concept of typewriting. The fundamental aspects of the MT/ST which initiated this revolution were speed and magnetic recording. Because of the printout speed of 15 characters a second, a typist could produce an error-free page in one to two minutes. Because of the magnetic recording feature, it then became possible to store documents for as many revisions as needed (text editing) and to store a document for printing out any number of multiple copies. According to Simcoe (1980), "technology in the field of word processing began in the early 1970's and has progressed at an accelerated and almost incomprehensible magnitude of sophistication" (p. 11).

The hardware which has been involved in the recent technological advances that have allowed the evolution of the word processing approach and which are affecting today's office operations includes:

> Typewriter, Dictating Machine, Electric Typewriter, Copier, Duplicator, Executive Typewriter, Magnetic Media Dictation, Selectric Typewriter, Correcting Typewriter (using correcting tape), Paper Tape Typewriter (stores typing on paper tape), Magnetic Tape Typewriter (stores typing on magnetic tape), Magnetic Card Typewriter (stores typing on magnetic card), Memory in Typewriter, CRT Typewriter, Intelligent Typewriter, Intelligent Copiers/Duplicators. (Cecil, p. 9)

The equipment that sparked this movement is the electronic text-editing typewriter, and this hardware is the centerpiece of the word processing approach. According to Moody (1978, p. 19), WP equipment is divided into two categories: input (dictation systems) and output (automatic typewriters). Rohrer (1978) explains:

> Since many documents need a great deal of editing, it has been efficient to longhand and/or type them as rough draft copy before submitting them for typing in final form. But with entry of text editing equipment, it is possible to do a great deal of editing easily after typing the first copy. . . . With text editing equipment eliminating the need to retype documents in entirety but only to make the revisions, transcribing from dictation should be a pleasant and time-efficient experience. This is one reason why central dictation systems and desk-top portable units should be coming more into use in the future. . . . (p. 88)

WP installations range in size from the one-person office to centers which use large numbers of personnel (Ettinger, 1980, p. 18). Rohrer pointed out that "as the expansion of WP related equipment continues, WP is evolving as a minisystem within the area of office administrative services" (p. 9).

It was about 1968, Pibal reports, when

> IBM developed the "systems concept" of reorganizing a firm's personnel and procedures to utilize machines more effectively in handling written communications. Thus, word processing became a system of combining people, procedures, and equipment. (p. 10)

This management tool not only affects the way work flows through an office, but it affects clerical employment opportunities and job requirements as well (Ellis, 1982).

Some findings reported from interviews in a study by Maxwell and O'Hare (1979, pp. 29; 39), which was sponsored by the California State Department of Education, showed that new technology in the office is relieving some of the routine clerical work, as well as demanding new skills, knowledge, and capabilities. They report that although jobs seem "to be becoming more technical and specialized, the new technology is resulting in a refinement of jobs rather than causing new jobs to surface." They found a change in the nature, responsibilities, and characteristics of existing jobs. They reported that "most of the jobs new to particular companies are in the area of word processing, which is in itself not a new occupation."

Rohrer (pp. 83-84), however, found in her doctoral study that a new position with a specific job description has been created for the operator of WP equipment. However, there was a variety of titles or classifications, some of which were W/P operator, correspondence secretary, W/P specialist, typist, secretary, stenographer, W/P technician, word processor, general duty clerk, typist-WP, MT/ST operator. Kutie (1977) emphasizes that "the WP operator position cannot be equated with the clerk-typist level of work which is repetitive, routine, and usually noncomplex" (p. 112).

Moody (pp. 16-19) writes that the word processing approach has changed the manner in which work is produced in the office. The traditional method in which one secretary works for one or more executives is being replaced gradually in many companies by varying degrees of centralization and division of work between typing specialists and administrative secretaries. Improved productivity is the objective, and procedures are established to achieve orderly work flow, while providing for reasonable priorities. Procedures and policies are specifically described in company procedures manuals which are distributed to all employees. Policies are set for monitoring productivity, turnaround time, and quality. Moody explains that:

> Word processing divides the secretarial functions, assigning the typing duties to correspondence secretaries [word processing operators] while other administrative support work assignments are delegated to the administrative secretaries who usually support several executives. (pp. 13-14)

Ettinger (1980) states that "this diversification has created a knowledge gap between the traditional and WP environment where the generalist is being replaced by the specialist who works in a more structured environment" (p. 19).

The Delta Pi Epsilon (Scriven et al., 1981) study concluded that "word processing operators/correspondence secretaries are expected to provide 'back-up' administrative support in organizations when needed" (p. 328). The study further concluded that considerably more of the working time of word processing operators/correspondence secretaries is spent on activities associated with typing and transcription. So far as administrative support secretaries are concerned, more of their working time is spent in the area of written communications than in other areas.

Ellis reports that "projections by information processing experts indicate that the use of the word processing office systems approach will continue to expand as business firms seek to increase the productivity of office workers" (p. 18). The Rohrer (1978, p. 105) study verified projections that the word processing office systems approach will continue to expand. For instance, 100 percent of the respondents, who were all from large corporations, indicated that the volume of typing tasks produced on WP equipment would increase. Also, the overwhelming majority reported that all WP activities would increase except in the case of use of outside service bureaus.

Even if a student's primary job role will eventually involve only one phase of word processing, e.g., copying from rough draft, that work could be potentially more meaningful and satisfying if its place in the larger perspective can be grasped. Meroney (1979) writes that "every office worker, whether administrative/support or professional, will need to work with word processing in one form or another" (p. 6). Therefore, students need to be aware of the current office changes so that they adapt more easily to a workplace where the word processing approach may be used. Baumgardner (1981) concurs that "the office worker of the eighties must be equipped to function in a systems environment" (p. 10).

Daggett (1981) of New York State Education Department indicated that a need exists to review the total spectrum of technical knowledges and skills required of entry-level business and office employees.

> With the advent of word processing, increased emphasis on automation in keeping of records, changing office structure, and related events in the business world, tomorrow's . . . business education graduates will encounter much different employment responsibilities than those of the past. (pp. 2A-3A)

A cautionary note regarding changeover, however, is added by Beaumont (1981, pp. 66-67):

> The literature of today abounds with superlatives which describe the influence of word processing upon business and education. We read that word processing will cause dramatic changes in the business education curriculum, that word processing will revolutionize the way we teach business subjects and that word processing will force business educators to make drastic changes in the standards of achievement for students who wish to become office employees. How much credence can we give to these extravagant claims of change?

Beaumont says, "Like Alice in Wonderland, those who wander into the world of word processing find that there are actually two worlds: a theoretical world found in textbooks and magazines, and a 'real' world found in offices where some form of word processing has been introduced." For instance, he reports that centralization of all typing activities into a word processing center has not been an absolute success, for many executives resent it and some secretaries transferred to the word processing center become less effective and grow bored by the repetitive nature of their jobs. "Many companies are now decentralizing their word processing operations and forming teams of executives and operators, both of whom learn to use the keyboard to record and retrieve data." Beaumont goes on to suggest that sophisticated text-editing equipment is found primarily in large companies in large metropolitan areas and that the key word in establishing a word processing system with cost-effectiveness in mind is Volume.

Kaylor's (1983) perspective summarizes the office scenario: "The word processing and secretarial fields are not in competition. WP is simply integrating itself into office functions where it can be supported" (p. 27).

Occupational Outlook

Demographic trends in the United States are currently having a particular impact on business education and its student clients, for business education is concerned with an occupational cluster that is being affected by changes in occupational outlook. As London and Ewing (1980) state in the Nova Study Guide for Societal Factors, there is a need to be aware of major social changes and emerging demographic trends that confront adult educators. Mayhew of Stanford University (1979) in the Nova Study Guide for Higher Education views the collegiate institution as the servant of society and its mission changing as social needs change. He cautions that "unless higher education as it presently is organized does meet the needs of an urban society and of the disadvantaged now predominant in the central city, institutions will become moribund and can be replaced" (p. 46).

In 1976 Pierce, Deputy Commissioner for Occupational and Adult Education, reported that Alan Campbell, dean of the Maxwell Graduate School at Syracuse University, and others agreed that the United States was rapidly converting from a production to a service economy. Pierce said:

> The authors of the Occupational Outlook Handbook concur when they predicted significant growth between 1972 and 1985 in service occupations and a decline in goods-producing occupations. (p. 250)

London and Ewing emphasize that "an important characteristic of the labor force has been the rapid growth of white-collar employment since 1900, but especially since the 1950s, and that projected trends indicate a continued rise in white-collar occupations" (p. 33). In 1976 Lambrecht's history indicated that clerical workers were the largest of the white-collar groups and that "at the close of the 1960's, 17%

of all the employed persons in the nation were in this field" (p. 77). According to Byron (1980) in the Economy & Business section of Time magazine,

> In the U.S.'s service-oriented economy, the paper chase of the American office is already tying up 25% of the nation's work force, and by 1990 the figure is projected to rise to 40%. The number of workers entering the labor market will decline during the '80s, and by the end of the decade there will be perhaps a 10% shorthage of office employees. (p. 82)

Wood (1980), member of the joint committee of the National Business Education Association and the Business and Office Education Division of the American Vocational Association (NBEA/BOE-AVA), stated:

> In many cities today it is impossible to find an adequate supply of job applicants who possess entry-level skills in typing, filing, record-keeping, and similar jobs. Recent projections by the United States Department of Labor, Bureau of Labor Statistics, indicate that the U. S. economy will create nearly 20 million new jobs by 1990. Well over half will be in white-collar occupations. Between now and 1990 America's business offices are expected to generate a total of 4.8 million new jobs in administrative support occupations. This is the largest growth being projected by the Labor Department for any single occupational cluster. . . . The Department of Labor projects a need for 16 million new and replacement clerical office workers in America's offices over the next ten years. (pp. 13-15)

"General Business Potpourri" in Business Education World in 1979 reported:

> More jobs are opening up in the secretarial field than in any of the other 299 work classifications on which the Department of Labor keeps tabs. About 20 percent of the secretarial jobs go unfilled each year, and according to the Bureau of Labor Statistics, the annual average number of openings over the next twelve years will be 302,000. (p. 31)

Scripps-Howard staff writer, Thompson (1982) writes about a new Bureau of Statistics review of 435 occupations to determine which were the biggest winners and losers from 1972 to 1980. Secretaries were among the top ten occupations showing the largest numerical increase; and stenographers were among the biggest losers because the spread of dictation machines reduced the need for stenographers. Thompson quotes a review conducted by BLS economist Carol B. Leon:

> Generally speaking, as the service-producing sector expanded, so did office and service jobs, while slow growth in manufacturing and other goods-producing industries limited the increase in employment of producing workers. (p. B-6)

Lambrecht (1976), in a history of office education, reported that five major economic changes have contributed to the increasing importance of clerical work in our society:

> (1) rise in the number of large businesses and hence more complex communication lines requiring larger supportive staffs; (2) rise in the specialization of work performed in the larger firms; (3) rise in the proportion of service industries, in which "paperwork" is a significant by-product; (4) rise in government regulations and the consequential flood of "paperwork" requirements; and (5) rise of scientific management and the systems approach with their need for new types of data. (pp. 76-77)

So far as the Pittsburgh region is concerned, according to a report in The Pittsburgh Press (1982) entitled "The Blue Collar Fades,"

> The current recession has accelerated a 2-year decline in the importance of manufacturing employment. The Pennsylvania Office of Employment Security predicts the decline will continue over the next decade.
>
> Between February and September this year [1982], the Pittsburgh district lost another 16 percent of its manufacturing jobs to recessionary layoffs, as well as permanent plant closings and workforce reductions. Total employment in the service sector, however, actually moved up 1 percent. (p. A-16)

Wylie (1982), business editor of The Pittsburgh Press, quotes Robertson, Mellon chief economist and reports:

> Pittsburgh is shifting from a heavy industrial area to a service economy. The recessions of the early '70s and at the end of the decade have taken their toll of manufacturing here. Since 1968, 52,000 steel jobs have been wiped out, by Robertson's count. He sees another 25,000 going down the drain by 1990.

> Because steel employment is waning, Robertson believes the area's most serious problem in the months ahead will be finding jobs for phased-out steelworkers. (p. B9)

Kennedy, Hotz and Bowman (1982, p. A17), in a report regarding regional unemployment, quote Brian Berry, dean of Carnegie-Mellon University's Public Policy School, who says, "I believe we're in one of those watershed periods in history where old structures decay and new systems replace them" Kennedy et al. go on to report that "Pittsburgh has a foothold on the new order and a future as a service center and hub for education, medicine and business."

Future prospects due to growth and labor force separations, reported by the Department of Labor and Industry of the Commonwealth of Pennsylvania (1980) for the Pittsburgh Standard Metropolitan Statistical Area, indicate

> excellent employment opportunities for secretaries because they are essential to almost all industries and in particular growth industries, such as banking, insurance, and government. Both growth and labor force separations will create large numbers of job openings for secretaries. Employment of stenos is expected to decline because of the increased use of dictation machines. However demand for skilled shorthand reporters should remain strong as State and Federal court systems expand to handle the rising number of criminal court cases and civil lawsuits. (pp. 36-37)
>
> Employment [of general office clerks] is expected to increase faster than the average for all occupations with labor force separations contributing toward job openings. Growth is expected to result primarily from increased paperwork in most kinds of organizations. The nature of clerical jobs is likely to change with the introduction of new equipment. (p. 38).

Many of the Pittsburgh region's businesses have not yet added the expense of computer-type equipment because of uncertainty about the economy. Rankin (1983) in The Pittsburgh Press reports:

> An improved economy, they say, will encourage companies to start hiring again and to buy much of the expensive computer equipment they have put on the back burner.

> . . . and much of this advanced technology is being used in service-industry jobs which have seen an 85 percent increase in jobs in the past 20 years compared to the 25.8 percent drop in jobs in the primary metals. (p. B1)

In addition to displaced housewives, unemployed "blue-collars" may also be recycled into white-collar clerical office jobs. The secretarial/clerical occupational cluster provides yet another avenue for the males in the white-collar labor market. Working in the futuristic automated office which is evolving may be a particularly interesting notion to the males--both unemployed blue collars and disadvantaged youth. The sex bias that is recommended to be broken down for disadvantaged youth also needs to be erased for the blue-collar unemployed male. Pierce (1976) wrote:

> Another consideration is the impact of the Civil Rights Act, Title II, with its prohibitions against sex discrimination in certain types of education institutions. The emphasis is on the availability of vocation education schools to students of both sexes. Of greater ultimate importance to vocational education will be the necessity to conspicuously and purposely open all courses and, more importantly, all occupations to students of both sexes. (pp. 250-251)

Lambrecht (1976) indicated that one of the outcomes of the 1963 Vocational Education Act and the subsequent 1968 Vocational Amendments, which have had a profound effect on office education as funding and prescriptive forces, was that:

> Greater efforts were made to serve persons with special needs, especially after the 1968 Amendments, so that instruction in various types and levels of programs in office occupation could be available to "all who want, need, and can profit from the instruction." (pp. 82-83)

In order to address social concerns, Pierce stated that:

> Educators will need to respond by improving science and technology, narrowing the gap between the haves and have-nots, helping to lower youth unemployment rates, eliminating sex discrimination, preparing personnel for a service economy, keeping educational programs current, and increasing the efforts to provide adult education programs. (pp. 251-252)

Even though employment potential is in favor of white-collar clerical workers, these workers will need to be prepared to work with technologically advanced office systems. Ettinger (1983) found this to be so:

> One of management's primary concerns will be securing productivity from all employees. The key to improved productivity is maximum efficiency in every aspect of automated communication systems, such as document processing, telecommunications, electronic mail, and phototypesetting. (p. 2)

Perspectives in Office Education

The question of meaningfully preparing students for office careers has been a traditional concern of business educators. Stoddard, chairman of NBEA's Career Education Committee in 1980, says that the Committee has determined that more planning, projecting, and coordinating need to be done in the postsecondary area for business programs.

Kaufman and English (1979) state that "external needs assessment will identify the skills and knowledges which are important outside the school so that this information can be used as the basis for educational design and effort" (p. 78). There is concurrence among business educators regarding the desirability of external assessment.

As indicated in the "Secretarial Forecast" of Business Education World (1982), just as the responsibility of school administrators has always been to respond to the needs of the community and local businesses, the responsibility of business education departments has also been to equip students with employable skills to satisfy those needs. The Delta Pi Epsilon (1981, Scriven et al.) national study of word processing advises that "in order to prepare qualified personnel to function effectively in meeting the communication needs of business, business educators must have from the business community current information and projections for the future" (Scriven et al., p. 1). The study by the New York Statewide Business Education Review Committee (1980, p. 13) concurs that "the business education community must have substantial and continuing input into the development of required occupational competencies" and recommends that business educators at the local level reexamine and modify their programs on a continuous basis. Jorgensen and Campbell (1982), of the Virginia Department of Education, also concur:

> Business education occupational preparation programs must be representative of the working environments that are actually found in offices. Those students who have had the opportunity to develop basic office skills on up-to-date equipment and who have completed occupational programs in which office systems have been emphasized will be in a better position to accept employment. (p. 29)

Although there appears to be a current interest in determining the most appropriate place to incorporate word processing and office technology, Stitt (1982) confirms the importance of reevaluating the entire business education curriculum in order to determine "where we are in relation to the state-of-the-art in the business world today" (p. 11).

Current Perspectives

Business educators particularly need to know which skills the business community expects of new office employees now that the "new equipment" of word processing is on the scene so that they can prepare students realistically for the workplace. Educators are concerned with preparing students to meet this challenge and are "hypothesizing what, if any, changes in skills and knowledge are required in various job titles within business. A review of the literature, however, indicates a lack of research on which curricular changes can be documented" (Simcoe, 1980, p. 11).

Wagoner (1980) reports that in a survey conducted in late 1979, the International Word Processing Educators Advisory Council found that word processing is being taught primarily at the postsecondary and collegiate levels. The author points out that "schools responding are probably indicative of the most innovative and advanced in the nation and may not represent the wp effort nationwide" (p. 22). Data collected in Ettinger's (1980, pp. 2A; 20) doctoral study "evidenced a positive need for WP curricula in two-year post-secondary institutions." Therefore, she advises that the two-year postsecondary schools must continue to provide leadership in the development of curricula: "They have to produce graduates who have the skills and knowledge that will enable them to function in a WP environment."

Beaumont (1981), however, cautions business educators not to make hasty major changes in their curricula to prepare students who may be interested in entering the word processing field. He suggests the following approach:

> What training can business educators provide to prepare their students for the world of word processing? All business education students should be familiar with word processing. Units on the theory and practice of word processing can be included in office practice or general business classes. . . . In addition, training on an electronic automatic typewriter in the capstone typing course or in the business machines course will give the students a taste of operating the more complex, text-editing machines. (p. 68)

Turner (1981) presents the following optional approaches:

> Traditionally, these basic strategies have been used in teaching word processing: (1) equipment training only, (2) theory and concepts, (3) combination of theory and equipment. Obviously, the third approach is the one that provides the ideal preparation for the electronic office. Realistically, this approach is not always possible due to cost. . . . Use of

> automated equipment adds reality to WP instruction. Keyboarding and playout experience are an advantage to students when they apply for jobs. (pp. 24-25)

In Rudnitsky's (1980, p. 13) survey of Los Angeles County businesses, 73% of the respondents reported that they did not use automatic (word processing) typewriting equipment in their organizations. Results in Ott's (1979) doctoral study were similar, for they revealed that "approximately one-fourth of the 224 firms contacted by the mailed survey instrument used word processing equipment," and projections showed that 57.6% of the surveyed firms would be using the equipment in a five-year period. Ott further found that:

> Nearly three quarters of the respondents (70.2 percent) recommended that word processing skills and concepts be taught as part of existing courses in the business and office curriculum rather than as a separate course in word processing. Equipment mentioned most frequently as essential for teaching word processing were memory typewriters, selectric typewriters, or CRT-Video screens. (p. 2030-A)

Casady (1981) perceives that there is a high transfer of learning from one well-rated brand of WP equipment to another, and for this reason "companies hiring word processing operators are eager to find students who know how to operate any kind of equipment so long as they have good mechanical skills (grammar, spelling, proofreading, etc.)" (p. 32). However, Meroney (1979), word processing supervisor of Price Waterhouse & Co. in the Office of Government Services, indicates that although in prior years equipment operation was a qualification for applicants in word processing centers, now management finds that:

> The basic skills needed to operate most word processing equipment can be learned in an on-the-job training course. Generally this is accomplished through the use of self-paced programmed material provided by the manufacturer of the equipment. . . . (p. 5)

However, Meroney does feel that "a knowledge of word processing is beneficial to any individual in the business world" (p. 6). According to Ettinger (1980), though, on-the-job training means lost production time, and another drawback is that vendor training is both costly and generalized. She therefore recommends

> separate courses for basic and advanced applications on electronic typewriters . . . to teach the technical skills of keyboarding. . . . In schools where WP is or will be integrated in existing courses, then the logical placements for teaching these skills are in the typing, transcription, and secretarial practice classes. (p. 367)

Moody (1978) in her doctoral study concurred with Ettinger:

> Knowledge of word processing equipment training prior to job entry would be either helpful or important. Likewise the majority of supervisors believed that knowledge of concepts would be beneficial to an entry-level word processing secretary. (p. 175)

Moody therefore recommended that word processing be offered as a separate course when feasible and incorporated into existing classes in most cases.

Dennee (1981) in her doctoral study agreed that emphasis should be given to equipment-related skills for a correspondence secretary but that

> knowledge in the area of concepts, processes, and careers in word processing were not rated as very important for either correspondence or administrative secretaries. A word processing curriculum should include these competencies but they should not be emphasized in the offering. (p. 290)

Ellis (1982) also agrees that "individuals who desire to specialize in the production of written communications must be machine-oriented and able to adapt easily to automated word processing equipment" (p. 19).

The Delta Pi Epsilon (Scriven et al., 1981) study concluded that the following appear to be major competencies required by entry-level Word Processing Operators/Correspondence Secretaries and Administrative

Support Secretaries:

> typing with accuracy from typed copy, from handwritten copy, and from rough draft within a satisfactory length of time; correctly applying grammatical and transcription rules in typing letters, memos, and other kinds of typing of varying lengths; following directions; and listening. Additional major competencies required by Administrative Support Secretaries are the ability to use a filing system, the ability to answer incoming telephone calls, and meeting and greeting people. (p. 329)

As a word processing supervisor, Meroney (1979, p. 5) has determined seven areas which he feels are key factors when selecting applicants: typing skills, transcription of dictation, proofreading, grammatical skills, use of resource materials, mathematics, and concepts and theory of word processing.

Murranka (1979) in her doctoral study found that the primary tasks performed by correspondence secretaries involve typewriting, editing, and transcribing. Findings indicated that administrative secretaries also reported a high frequency of typewriting in their jobs, and communications skills were important for the administrative secretary.

In her doctoral study, Ettinger concluded that for developers of WP curricula, "the most important items to be considered in curricular development are human relations, language arts, and electronic keyboarding . . ." and she recommends that "traditional secretarial students should be encouraged to elect WP courses' (p. 371). She presented a roster of specialized courses regarding word processing which should be included in the curriculum:

> Machine Transcription, Introduction to Word Processing, Office Information Systems, Beginning and Advanced Electronic Keyboarding, Office Supervision and Management, Word Processing Office Systems Simulation, and a final integrative Internship. (p. 4)

There is concurrence in the literature regarding the importance of typewriting skill for secretarial/clerical employees. Keyboarding from straight and statistical copy and formatting documents were rated as very important to critical for a correspondence secretary in Dennee's (1981, p. 290) study. A Boyce Campus (1982) house organ for students reported follow-up information from Career Week activities: J. L. Rogers, of Personnel Relations for Westinghouse Plant Apparatus, indicated that people interested in word processing careers must be able to type at least 60 words a minute, for the 60 wam or above rate is the level at which the word processor becomes cost-effective.

In Ott's (1979) doctoral study, the reported minimum typing skills required most often for entry-level word processing operators and administrative secretaries for satisfactory employment in word processing systems were 60-65 words a minute. Ettinger (1980) concluded that correspondence secretaries (or word processing operators) need extensive keyboarding skills and that administrative secretaries do not need the same degree of technical expertise. She elaborated that "correspondence secretaries are expected to type at an average speed of approximately 60 words a minute; administrative secretaries, 55 words a minute" (p. 366). Rudnitsky (1980, pp. 5-6) in a survey of Los Angeles County firms also found that entry-level word processing operators (correspondence secretaries) were required to have a higher typing rate (60-70 words a minute) than entry-level secretaries (50-59 words a minute).

Pibal (1980) indicates that keyboarding skills are essential in the word processing environment and should be developed from the beginning through the advanced training levels of typing. She says, "A high level of typing proficiency is required for word processing because word processing operators are measured and evaluated by productivity, usually measured in lines per day" (p. 11). Meggison (1983) recommends that students possess a minimum speed of 60 words a minute after graduation from a two-year word processing program.

An interesting turn of events is that keyboarding, which is the skill of typing numbers and alphabet letters, is not just for typewriters anymore. Atkinson (1983), chief consultant of business and office education in the North Carolina Department of Public Instruction, reports that some North Carolina high schools are teaching keyboarding (typing) in beginning typing classes which are equippped with both typewriters and microcomputers, for "chances are students will use various kinds of keyboarding terminals if they pursue a career in some facet of office employment" (p. 3).

Another area in which there is consensus regarding paramount importance for secretarial/clerical employees in the workplace and consequently in the educational institution is English skills. Powell (1975), Kutie (1977), and Dennee (1981) in their doctoral studies found that verbal communication skills and attitudes were first priority topics for curriculum consideration for all secretaries. Moody (1978) recommended in her doctoral study that more attention might be directed toward improvement in listening skills and in following directions and that students need to be able to proofread efficiently. She recommends further that:

> Continued and increased emphasis is apparently needed in grammatical skills. Such competencies as the ability to read and interpret business documents; spell, punctuate and capitalize; and construct correct sentences appear to be a top priority in the traditional secretary. (p. 177)

Dennee's study reinforced these positions, for she found that these competencies were "top priority in the administrative and correspondence areas" (p. 290). Driska (1983) also found that ability to follow directions, spelling, and vocabulary skills were among the five top-ranked hiring criteria named by responding firms in New York City as needed by beginning information/word processing graduates.

There is common concern among authors about the lack of satisfactory preparation in these skills. The Scriven et al. (1981) Delta Pi Epsilon study concluded that "the greatest job-related shortcoming of Word Processing Operators/Correspondence Secretaries and Administrtive Support Secretaries is clearly a fundamental weakness in the use of English" (p. 330). In her doctoral study, Rohrer (1978) concluded that:

> As companies believe that training programs of most value to WP operators are those to maintain an operator's correct English usage, business educators should re-evaluate the quality of and acceptable standards for basic English curricula. . . . It appears businesses are not satisfied with the current standards, as they have to supplement this training. (p. 110)

Ettinger (1980) in her doctoral study also arrived at the conclusion that business is not satisfied with the communication skills that employees possess: "Supervisors and managers complain that secretarial personnel are deficient in spelling, English usage, and punctuation skills that are prerequisite to proofreading ability" (p. 368). She also concluded that "both correspondence and administrative secretaries must be proficient in communicating orally and comprehending oral instructions" (p. 369).

Scripps-Howard staff writer Eskey writes in The Pittsburgh Press (1983) about a recent report to a Senate subcommittee by economist Susan Raymond which was based on responses by 184 companies to a survey conducted by the Center for Public Resources in New York and financed by the Ford Foundation and the Prudential Insurance Company. The survey revealed that businesses are losing millions of dollars because of the "lack of basic skills among newly hired and older workers"; for example:

> One corporation reported that 70 percent of all outgoing correspondence must be retyped due to errors in grammar and spelling. . . . More than 40 percent said their secretaries have difficulty reading correspondence. (p. B-6)

The Maxwell-O'Hare (1979, p. 21) investigation revealed that 13 of the 59 companies in the study "mentioned a need for stronger Business English instruction" for prospective clerical employees, even though this particular question was not on the list of 10 questions. In a recent article, Ettinger (1983) writes that:

> Research studies report that employers, managers, and supervisors of secretarial personnel consider language skills and the ability to think as more important than knowing how to operate equipment. . . . Unfortunately, some teachers in their attempt to keep pace with the times, tend to stress technology at the expense of language skills. (p. 2)

Results of the WP study reported by Wagoner (1980) indicated that "a number of schools are introducing new courses designed to meet the need for improved English skills. Titles given to such courses are: Business English, Pretranscription Skills, and Introduction to Transcription" (p. 24).

Are employers still requiring shorthand skills for entry-level employment and performance? Generally, the literature indicates reduced need but implies continuation of teaching shorthand to prospective secretarial workers.

Conclusions reached in the Delta-Pi-Epsilon (Scriven et al.) research study indicate that:

> Administrative support secretaries may be required to possess shorthand skills in specific organizations; however, the general trend appears to indicate a reduced need for such skill in organizations which have implemented word processing installations. (p. 330)

The Maxwell-O'Hare study reported that:

> Although the trend seems to be toward less demand for shorthand, this is more common in large companies that are using word processing equipment than in smaller businesses with fewer employees and less automation. Even though the need for shorthand is reduced, it is by no means going to completely disappear in the immediate future. (p. 34)

Maxwell and O'Hare further indicate that "for non-entry-level secretarial jobs, shorthand is still important, especially if the secretary wants to work for an executive." Moody (1978, p. 176) concurs and recommends that shorthand be taught to meet the needs of future administrative secretaries.

Hosler (1983) reports that in a telephone survey of Wisconsin employment agencies completed in May of 1981, the majority said that skills in word processing are important but that hardly means the end of shorthand. They said that the two skills work together, each with different purposes, to carry out the activities of the business in an efficient manner. The agencies confirmed that "there are more jobs for secretaries with shorthand skills than there are people to fill them" (p. 23).

In Rudnitsky's (1980, p. 5) survey, 63% of Los Angeles County firms did not require entry-level secretarial and clerical workers to take shorthand. Of those businesses that required shorthand, the speed requirement was 80 words a minute, and the higher shorthand speeds were not in demand. Taking shorthand notes was also rated as unimportant for correspondence secretaries in Dennee's (1981, p. 290) study.

Simcoe (1980) writes that while some educators contend that shorthand will remain a required skill in relation to word processing, "others predict that it will decrease in importance at an increasing rate" (p. 11). She advises that until more evidence is found to determine shorthand usage, it is probably wise to teach shorthand skills. Rohrer (1978) generally concurs; however, she recommends that since her study evidenced no need of shorthand for a WP operator, that new degree and certificate programs being developed for word processing operators need not include this training.

> This will give the student who cannot master a shorthand system based on phonetic nonalphabetic symbols but who can type accurately and transcribe from magnetic media an opportunity to develop a marketable skill as a WP operator. Secretarial curricula should include this option. (p. 109)

Ettinger (1980) also concluded that shorthand should continue to be taught in secretarial programs. Her study showed that "more than one-third to one-half of the AS [Administrative Secretaries] utilize it on the job." However, she recommends that "speed standards should be re-evaluated to determine if the present requirements for taking dictation at 120 to 140 words per minute are necessary to meet current needs." Her study concluded that while shorthand was not essential in word processing centers, it continues to be used as a tool for administrative tasks. She therefore recommends that "students in WP curricula should have the option of electing shorthand" (p. 368).

The other kind of skill that is basic in order that a student be prepared for word processing positions is transcription typing. The ultimate objective is the production of a mailable transcript from machine recorded dictation by a challenging integration of language art skills with typing, machine manipulating, and formatting skills. In addition to the mechanical skills, grammar skills are vital.

Transcribing machine dictation was rated a top-priority skill for correspondence secretaries and administrative secretaries in Dennee's (1981, p. 290) doctoral study; for correspondence secretaries, it was rated very important to critical. Machine transcription skills were required for word processing operators and administrative secretaries by a majority of firms responding to the survey in the Ott (1979) doctoral study. Meroney (1979) explains the importance of machine transcription in the word processing work environment.

> Dictation is being used more widely in creating work in the business world because of the stress on time management for professional staff. Shorthand in word processing environments is not fully being utilized; however, machine dictation is very prevalent. Machine transcription capabilities have become an important and integral part of word processing due to the shift by authors of business writing in creating work. Familiarity with machine transcription as a means of creating typed copy has become a must. (p. 5)

In order that the student learns to integrate all the skills, machine transcription studies should be expanded into a one- or two-semester course in any word processing curriculum (Pibal, 1980). Ettinger reported that transcription skills "are important for the correspondence function and desirable for the administrative secretarial position" (p. 2) and she also recommends that:

> A course in machine transcription should be included in every secretarial program to develop the skill that industry expects its employees to possess. . . . Transcription equipment should be located near electronic typewriter stations for direct inputting into the equipment from recorded dictation. (pp. 366-367)

Moody (1978) also recommends that machine transcription should be taught to meet the needs of future administrative secretaries. She recommends that "increased emphasis on machine dictation in business probably should be paralleled by increased emphasis in the schools" (p. 177).

So far as the importance of other skills and equipment in the office goes, Ettinger concluded that "knowledge of the operation of the duplicator copier is essential for the AS [Administrative Secretary]."

She recommends that:

> The operation of the duplicator copier should be covered in a secretarial procedures class in which concepts of duplicating--methods, paper, cost factor, size of job, and care of equipment--are covered. (pp. 366-367)

Knowledge of and usage of the computer also appears to be a concern. In a report regarding Michigan schools, Bushen, Benson, and Laundroche (1983) indicate:

> Returning graduates are reporting that they need word processing and computer skills, in addition to their secretarial and clerical skills, in order to acquire and to advance on their jobs in today's market. (p. 5)

Also, because some businesses have recently been expanding their job descriptions to include work on word processing and computer equipment, Bushen et al. report that Michigan schools are getting into microcomputers and word/information processing. Programs at three different area vocational centers are described. In a one-year information processing program in which students learn concepts and terminology related to data, word, and information processing, the students

> also have the opportunity to learn how to operate a variety of information processing hardware--keypunches, key-to-disk equipment, CRT's (for word processing and data-entry), photocopiers, machine transcribers, electric and electronic typewriters, stand-alone word processors, and phototypesetting equipment. (p. 5)

Included in another program, which is offered in a 2½-hour per day full-year block, are

> both stand-alone type word-processing equipment and terminals connected to a central IBM System/34 computer. In addition to word processing equipment and concepts development, students receive training in transcription, basic English and vocabulary skill development, office procedures, and employability skills. (p. 5)

The third program, which provides training in word processing to students in both the typing-clerical and steno-clerical programs,

> is equipped with one IBM Displaywriter. The steno-clerical students begin their training on an IBM electronic typewriter and subsequently move to the Displaywriter and then the IBM Office System 6. It is felt that the electronic typewriter provides the learner with the concept of storage and, therefore, is an excellent introduction to the concept of word processing. (p. 5)

A course in data processing was often suggested for clerical students by respondents in the Maxwell-O'Hare (1979) study. However, most of the people did not mean a "hands-on training class in computer programming, but rather instruction in the basic principles of data processing" (p. 41).

Summary. Some traditional ways of preparing communications in the offices are changing, and offices are incorporating word processing and office automation systems approaches at differing paces. Moody (1978) outlines what appears to be a logical perspective for business educators regarding their approach to preparation of students for today's job market. In her doctoral study, she recommended that "office occupations curriculum be designed to meet the demands of the emerging automated office as well as continue to meet the need for traditional secretaries" (p. 176).

Future Perspectives

Business educators need to be aware about implications regarding future curriculum development by adopting a proactive posture that involves reevaluation and reprioritizing. Education should prepare for the future as well as the present and should provide students with the skills, knowledge, and attitudes of emerging technologies (Ettinger, 1980, p. 372). According to Lippitt (1982), who has done much work in the field of organization renewal:

> The future is already here, someplace. In other words, the effective patterns of production and services of the future are already in practice in scattered agencies and organizations and by small teams of workers. The job is to locate them and to discover ways of learning about and adapting their models. (p. 11)

Generally, there was consensus in the literature regarding recognition of the changing office environment and of the development of systems integration.

Rubin (1981) gives this account of the future usage of automated equipment:

> Industry experts predict that five million conventional typing stations will be replaced by word processors in the next seven years. This means that approximately 40 percent of today's secretarial and clerical jobs will involve the use of automated equipment. (p. 31)

The Scriven et al. report of the Delta Pi Epsilon (1981, pp. 328; 331) national study concluded that "employment opportunities for word processing personnel will continue to grow in the next five to ten years." Some of the other conclusions which the researchers reached regarding the future were that:

> More software training programs will be available for word processing equipment; many of these programs will be related to the development of grammar and transcription skills [e.g., hyphenating packages, spelling dictionaries, and grammar and punctuation packages].
>
> Direct keying on electronic equipment will become a necessary skill for all office personnel at all levels in the organization--not just the secretarial staff.
>
> . . . Responsibilities of secretaries will be expanded and/or changed. One expected change is the development of information management specialists.
>
> . . . There will be greater interaction between word and data processing within the next five to ten years.

Industry experts who were surveyed for part of this Delta-Pi-Epsilon study expect that "the future will be determined less by the availability of new technology than by people, their willingness to change, and their ability to understand and use the technology in an efficient and productive way" (p. 320). Even though software such as hyphenation packages and spelling dictionaires will be developed to assist operators, these experts indicated that educators must do more to develop the basic skills of students. "Rather than consider commercial software as threatening, educators should welcome technology" (p. 322).

Some programs already are available--and other compatible systems are being refined--to check spelling and to format documents. However, Bowman and Branchaw (1983) caution:

> While the computer may be able to change recieve to receive, it probably won't be able to change foreward to forward or to to too. Nor will the computer be able to tell whether the document is written in syntactically correct sentences or whether it contains dangling modifiers. Just as important as the need for well-developed language skills will be the need for a firm grasp of business communication skills. (p. 1)

In a recent article (Ettinger (1983), who is the 1982 recipient of Delta Pi Epsilon's National Research Award for her work in word processing, points out:

> As machine dictation/transcription becomes the dominant method for originating and producing correspondence and as the growth of telecommunication allows employees to work at home while maintaining direct access with support staff through telephone lines, the need for solid language arts skills will increase. (p. 2)

A new era of business communications is evolving because of the rapid technological advances, and the trend is toward creating sophisticated office systems. Maxwell and O'Hare (1979) found through their review of the periodical literature that:

> The office of the future will involve less paper, extensive use of word processing and data processing equipment, interfacing of machines, electronic mail systems, and more job satisfaction. Word processing, in particular, was given

> strong emphasis inasmuch as its role in the office is becoming more important and more prevalent. (p. 11)

However, industry experts in the Delta Pi Epsilon study (Scriven et al., 1981) reported that "the term word processing will probably be used less and less and office systems will include more functions than were considered when word processing was created in 1965" (p. 318). A. E. Dee--vice president for corporate planning at Corvus Systems, Inc., a California-based microcomputer manufacturer--agrees. In his quote in the "Professional News" section (1983) of *Business Education World*, he predicts that "word processing as a dedicated terminal entity will cease to exist during the 1980s. . . ." He says that there is a movement toward a merger of WP and DP into the "general-purpose, multifunctional personal workstation from the word processing side" and that "the only reason the two [WP and DP] are considered separate now is because of historical demands of the marektplace. . ." (p. 14).

In her doctoral study, Ettinger (1980, pp. 369-370) concludes that "WP will be integrated with data processing, photocomposition, telecommunications and typesetting. Some firms have already achieved this union." She recommends that "rather than wait for this integration to happen before preparing students for it, it is advisable to incorporate these topics in existing courses."

Stocker, Neal, Lutz, and Fudala (1983, pp. 30; 32) report that "desktop computers are being used to automate the office through the integration of word and data processing. Word processing is being done with computers and data processing is being done with word processors, and "many departments use the term 'information processing' to reflect the trend towards combinging word and data processing on the same terminal."

A combination of the low cost, versatility, and capability of the microcomputer is making it a popular addition to the office systems of many businesses. Miller (1983) writes:

> Today, the use of microcomputers in the office is growing faster than the overall market. With the microcomputer's potential for networking, its ease of installation, and the selection of software programs available, there are predictions that all information workers will be using a microcomputer by 1985. (p. 7)

Miller indicates that the increasing popularity of the microcomputer affects the job of the secretary. The microcomputer can be used for "the more obvious tasks such as scheduling, calendaring, editing, and managing files that are already handled by the secretary." In addition, the microcomputer can be used for such responsibilities as "dictating to the word processing center, graphing statistical information, plotting budget projections, and researching and preparing speeches, which could also be delegated to the secretary."

A recent national study done by Wallace (1983) revealed that 32% of the business education departments surveyed already had existing microcomputers, 15% of whom reported using microcomputers for word processing instruction. The study revealed:

> While some business educators have concluded only that word processing is the way of the future and are being challenged to meet current demands for specialized training in the field of word processing, others have recognized the link between DP and WP as they discuss the common factors involved in both systems--both have input, output, a central processor, and some form of storage. (p. 10)

Simcoe (1980) sees this link::

> Computer word processing linkages have already emerged in some companies and are predicted to become even more interrelated. Some companies are utilizing word processing/computer processing teams: secretaries to keyboard data; text-editing offices for editing copy of keyboard operators. (p. 12)

Findings of the WP study reported by Wagoner (1980) indicated that at the advanced levels of word processing courses, telecommunications and computer interfacing are already being taught. She says that "in California, several of the community colleges are communicating with one another as a regular part of their programs" (p. 25). Arnston (1983) elaborates that at Saddleback College North Campus in California

> telecommunications networking in the teaching of word/information processing is emphasized. Students learn key concepts and practice working with facsimile telecommunications and point-to-point communications using OCR and the following IBM equipment: Displaywriters, 5520, OS6, Mag Card II, 6870 laser printer, and 6640 ink jet printer. (p. 7)

Behling and Brooks (1981) report that:

> Most computer scientists believe that the next big era in computer development will involve electronic communications between machines. Microcomputers and telephone lines will be central points in this electronic system. Unless computer systems have the capability of accepting "add on" features to provide for communications between systems, they are likely to become obsolete within the decade of the 1980's. (p. 31)

There are differing views from business educators regarding the future of shorthand. For instance, Nixon (1982) writes that shorthand will remain an important skill for the secretary of the future. She perceives that a student will be more marketable with good skills in both shorthand and machine transcription. However, Holmquist (1983) questions the future practicality of shorthand to the younger computer-oriented generation who are moving into management positions.

> They think in terms of fast technology. . . . Is it [shorthand] the best way for an employer to send a letter, when he can push a few buttons on the computer by his desk and either call up canned paragraphs or type a note which is carried directly by electronic mail to the office of the person with whom he wishes to correspond? (p. 4)

According to Byron (1980) in the Economy & Business section of Time magazine (1980),

> Silicon-chip technology is beginning to spawn such devices as typewriters that can recognize and identify misspellings,

> copiers that can memorize, store and retrieve documents, and dictation machines that can translate a spoken message into a typed page. (p. 81)

If such so-called "smart machines" are to become a reality in the office, a question is raised as to whether future clerical workers will need to take any shorthand or machine dictation whatever. Bowman and Branchaw (1983) predict that handwritten drafts and person-to-person dictation will become obsolete and that "executives on all levels will be producing their own documents on computer terminals that will be standard office equipment." They raise these questions:

> The computer will certainly affect the business education curricula of the future. For example, how important will dictation and shorthand skills be in an era of telecommunications? What changes in instructional emphasis will be necessary when computers automatically format letters and memos, check documents for errors in grammar and spelling, and then transmit them to their destination, where they can be read at the receiver's convenience on a Video Display Terminal (VDT)? (p. 1)

Summary. The fully automated office exists in varying degrees in the offices of the nation. Fisher (1983, p. 1), editor of business education and communication at Science Research Associates, says that "the familiar pen-and-pad-and-typewriter are being replaced by electronic workstations built around computer terminals." Messages can be keyed into a terminal by the writer and then "transferred electronically to the terminal in the office next door or to one in a remote location." These messages can be achieved across the country or around the world in minutes.

Ettinger (1980) in her doctoral study reports that "there is increasing use of portable equipment, conversion of TV screens to receive computerized information, and communication links that enable people to work at off-site work stations, including the home." She recommends that an investigation be made of companies who use these automated systems in order to learn "administrative procedures, personal requirements, job descriptions, types of work handled, and equipment usage" (p. 374).

However, Beaumont's (1981) note of moderation is added to the entire scenario:

> There is no question that word processing will have an impact upon business education. The impact, however, will be evolutionary in nature rather than revolutionary. Changes in curricula, courses, and teaching methods will be made slowly over a period of years. . . . They [business educators] should be skeptical, however, of extravagant claims made for word processing by "experts" in business and business education. (p. 68)

Summary

The search of the literature has led to insights regarding employment potential in the secretarial/clerical field and regarding where the technological advances are leading regarding word processing and office automation. These insights may help the institution to be receptive of proactive initiatives regarding reprioritizing and countering guarded turfdoms.

The word processing and automated office systems approach has made notable inroads and is the wave of the future. The approach, as it further evolves, will include fast-developing technological advances that will facilitate information processing and networking that involves high-tech distance telecommunications. However, it is necessary to determine circumstances in individual regions, for geographic, economic, and other factors may determine the rate at which change is acceptable and therefore takes place in various business offices. To cope with these changes, educational institutions need to review the total spectrum of technical skills and knowledge required of entry-level business and office employees, including needs assessment of the business community.

Secretarial/clerical jobs are likely to be more available than those in other fields. However, students who are training for office jobs should be prepared that businesses are beginning to expect that clerical office workers can use "the new equipment."

The most prevalent competency that was reported as vital and central in any of the secretarial/clerical occupations, including the new word processing operator position--whether in a current or in a future perspective--is competency in the English and communications skills. Keyboarding competency was also foremost, and there was concurrence in perception of need of fast and accurate typing. The authors were divided in their perception of need of preliminary hands-on training on WP equipment, for some felt that this training could be acquired on the job site. There is consensus that shorthand skill is not needed in word processing operator positions. And although need for shorthand has lessened for secretaries, there is still need for secretaries who possess this skil. Authors are divided in their view regarding future need of this skill.

The current high rate of unemployment, especially among youth and blue-collar males and displaced housewives, is a problem that needs immediate response. Workers need to be prepared for the white-collar jobs that are available and indeed increasing as the country shifts from a production-oriented economy to a service-oriented economy. And most of the white-collar jobs for which demand is forecast are in the secretarial/clerical cluster. Student clients can be prepared to qualify for and to fill the entry-level positions that represent these contemporary needs of employers.

The educational institution can participate in the democratization process by coinciding with the societal view of offering every study opportunity for experiencing success in training. As the Nova Study Guide for Societal Factors (1980, p. 15) states, "there is a growing role for formal education as the certifying and selecting agency for our labor force resources."

III. PROCEDURES AND METHODOLOGY

The purpose of this chapter is to describe the procedures and methodologies used in the study. The basic precept of this descriptive research study was to examine word processing approaches as they affect the cluster of entry-level secretarial/clerical jobs in the local business community. Information was sought not only regarding skills and knowledge particularly associated with word processing but also regarding the pertinence of the skills and knowledge that have been traditionally associated with secretarial/clerical jobs. The information was sought for the following four generic job categories in the secretarial/clerical occupational cluster: word processing operator, sometimes referred to as correspondence secretary; secretary, sometimes referred to as administrative secretary; stenographer; and clerk/typist. These four categories were determined to be generic and inclusive enough in the service area so that any variation of job title unique to a particular business organization could fall into one of the classifications. The current status of word processing equipment usage and the trends for a five-year projection of the use of word processing equipment were also studied. To procure this information, a questionnaire was distributed to a sample of the business community in the eastern suburban Pittsburgh region.

As part of the procedures a search for information germaine to the study was made by:

1. Computer search of ERIC through the Office of Information

Services of Nova Center for Higher Education.

2. Review of pertinent documents via microfiche obtained through Nova Office of Information Services.

3. Review of pertinent documents via microfiche obtained from University Microfilms International in Ann Arbor, Michigan.

4. Review of microfilms and hard copy of selected documents at the University of Pittsburgh Hillman Library.

5. Review of the professional literature (periodicals and books and unpublished manuscripts).

Type of Research

In order to describe social reality, in this descriptive research, survey procedures were used to collect information about how the business/industrial community is being affected by the movement toward inclusion of word processing approaches in the performance of office work. Rohrer (1978) in her dissertation says that when change is occurring in an environment with which one is immediately connected, descriptive research can provide information on the current status of the change and can answer questions of what does exist. Rohrer used survey research methods to gather information about how business offices are being changed by the use of text-editing equipment. The population was smaller than this investigator's study. It was delimited to large major companies--i.e., 12 of the 23 companies of the "Fortune 500" and of the "Fortune Second 500" which are based in the metropolitan Pittsburgh area, whereas the population in this study was much more heterogeneous, larger, and randomly selected from a population concentrated in the service area of the institution. Also, Rohrer's study focused on fewer selected competencies which included affective behaviors as well as other aspects regarding the position of correspondence secretary, or word processing operator, whereas this investigator examined a larger array of cognitive and psychomotor competencies as they pertained to the cluster of four secretarial/clerical job categories at entry-level.

Gallo (1975) indicated that "when the survey is used as a screening device, or when its purpose is to gain accurate description of the present relationships among variables, it is being properly employed" (p. 16). Since the goal was to yield meaningful educational outcomes at Boyce Campus of CCAC, screening for outcomes that are useful and what are not useful was central. The value of information obtained from surveys is so great that "it has become a real question as to whether the administrator or student of educational problems can afford not to use the survey research techniques" (Withey, 1960, p. 1447). From the information obtained externally through the survey of the community, the institution can be internally realistic in its efforts to plan educational change.

In the current investigation, a prepared list of skills and knowledge was validated in a performance setting by means of a mail questionnaire. The purposes of the survey were to identify manpower needs, to make the college known to the business community, to heighten the awareness of the business community regarding the college as a resource for trained personnel, and to acquaint the staff of the Department of Office Administration with job requirements of local employers for entry-level office workers.

Procedures for conduct of the survey were twofold: (a) development of an appropriate survey instrument, which was a mail questionnaire, and of the accompanying covering letters; (b) collection and reporting of data. The steps were as follows:

1. The Chamber of Commerce was notified of intent to use the membership as the population for the study.

2. The schedule was prepared by using models from the literature and by adding ingredients to reflect the institution's own unique situation.

3. The schedule was validated by the jury.

4. The schedule was reviewed and approved by the Nova University MARP Committee.

5. The questionnaire was reviewed with the CCAC Office of Institutional Research so that formatting was amenable for efficient coding of terms for computer processing of the data.

6. The schedule was reviewed by the chief executive officer of the institution.

7. The schedule was field tested.

8. Data were collected by distribution of the mail survey to the population.

9. Analysis and treatment of the data was accomplished via the SPSS programs (Statistical Package for the Social Sciences) through the resources of the University of Pittsburgh and of Datanetics of Pittsburgh, Pennsylvania.

In each step of the development of the survey instrument, contributors to the process were asked for input regarding possible improvement.

Population

The sample of business organizations whose perceptions were elicited was determined from a gross population of 440 business organization members of the Monroeville Area Chamber of Commerce which serves the eastern suburbs of Pittsburgh, Pennsylvania. The service area for the Chamber, as well as for Boyce Campus, is concentrated in the immediate Monroeville area and in some fringe areas reaching into downtown Pittsburgh within an approximate thirteen-mile radius of the institution. The writer apprised the Executive Director of the Monroeville Area Chamber of Commerce of the intended use of the Chamber Directory for institutional survey purposes, and a statement was made in the letter accompanying the questionnaire that the Executive Director of the Chamber of Commerce endorsed the study.

Modlin (1981), editor of shorthand and typing publications of McGraw-Hill, says:

> In order for your survey to be valid, you must have responses from a representative sample of businesses in your community. With technology changing so rapidly, it is also important to remember that listings must be validated every three to four years. (p. 3)

Accordingly, external validity was expected since the defined population was large and represented about one-third of the entire service area. For instance, the proportion of various sizes of business operations in the population was assumed to be reflective of the general population (non-Chamber membership) in the area. Subgroups within the population regarding size and nature of business were identified in the data collected from the schedule.

The population was obtained from the 1982 Business and Membership Directory of the Monroeville Area Chamber of Commerce including updates through March, 1982. Seven units who were indexed as being retired were subtracted from the list of 440 organization members before determination of the sample. The revised population therefore became 433 business organizations.

A decision was reached not to use stratified sampling, either by size or by type of business. Stratification would have guaranteed proportional representation for each group, but since the final selection of cases within each stratum should be made at random and "unless this is done in accordance with a carefully designed plan and under the direction of a sampling supervisor, a random selection with strata is seldom achieved" (Parten, 1966, p. 226).

The sample was obtained through the use of a random sampling technique which involved selection on an alternate alphabetic basis. The initial 50% random sample, based on the revised population figure of 433, became 216 business organizations. No preconsent process was included in the procedures for distribution, and a blanket distribution was made to the 50% sample. Of this initial random sample of 216, 19 entries were disqualified during the distribution process because of reasons stated in the Instrumentation section. The revised sample upon which response rate was based, therefore, became 197.

For purposes of this survey, eligibility for inclusion in the sample was determined by: a) current (1982) membership in the Monroeville Area Chamber of Commerce; b) "in business" status of organization. Usability of response for questionnaire sections 2, 3, and 4 was determined by employment of some kind of secretarial/clerical help in the responding organization. In the initial determination of the random sample, the investigator made the assumption that all of these conditions existed.

Instrumentation

A mail questionnaire (Appendix A) was used to obtain the pertinent data reflecting the perceptions of the respondents. Intent to survey and the preliminary concept of the format of the questionnaire had been reviewed with departmental faculty and with the departmental Advisory Committee in April, 1982. The schedule then was developed to suit the peculiar circumstances of the institution, for as Henderson (1970) wrote, "the nature and scope of a survey and its ultimate use depends on the characteristics of the college conducting the survey and the community it serves." Therefore the schedule was developed largely by means of selection, adaptation, and modification of other studies found in the literature, in addition to inclusion of questionnaire items to reflect the uniqueness of the situation.

Format and parts of the survey questionnaire were modeled according to studies done by the following: Rohrer (1978); New York Statewide Education Review Committee (1980); Brittain (1981); Modlin (1981); Peterson and Donin (1981); Scriven et al. of Delta Pi Epsilon national graduate honorary in business education (1981); Glisdorf and Rader (1982); Policies Commission for Business Education and Economic Education (1982); Owens (1982) ; Stubbe (1982).

Schedule

The schedule, or questionnaire, was designed to yield up-to-date information on current practices related to on-the-job performance of entry-level secretarial/clerical office workers. The three-page questionnaire was directed to the attention of the Chamber representative or personnel manager or office manager of the survey unit. In the cover letter of explanation, the recipient was asked to forward the questionnaire if someone else in the organization could more meaningfully complete the questions (See Appendix A). The signature of the chief executive officer of the institution on the covering letter added strength to a successful response rate. The letter also contained a range of time needed to complete the questinnaire, and an offer was made to share a summary of the findings with interested respondents. Directions for completing the questionnaire and definitions of some terms were included in the questionnaire. In the cover letter for the follow-up mailing and in the follow-up telephoning, each participant in the survey was assured that all responses would be treated as confidential and that the responses would be averaged and reported anonymously in combined data (See Appendix A). The recipients of the questionnaire were asked to answer the questionnaire to the extent it was applicable to their business situation, for the information regarding "nonapplicable" responses was meaningful in the analysis process.

Validity. Content validity of the schedule was reviewed by experts in the field--i.e., a jury of five consisting of three members of the faculty of the institution, one administrative officer in charge of the Division of Administrative Sciences at the institution, and one member in the business community. A covering note containing directions (Appendix B) accompanied the schedule. The jury are identified by name and title in the Appendix section. The panel members were asked to review each item on the questionnaire for content validity and to record the appropriate code in the right margin alongside each entry according to the following 5-point scale: 5 = very high pertinence; 4 = high pertinence; 3 = moderate pertinence; 2 = low pertinence; 1 = no pertinence. The jurors scored all of the items with a mean of 5, representing high pertinence, except eight items which had a mean score in the range of 4.4 to 4.8. These eight questionnaire items are reported in Appendix B. The investigator had planned to revise any item with a mean score of 3 or less; however, since all the entries had a mean score well over 3, no entry had to be revised or omitted. The validation committee also ascertained that the content covered a representative sample of behaviors. Construct validity was addressed by grouping similar representative samples of items on the questionnaire, all within the framework of the overall curricula of the Department of Office Administration. Minor adjustments regarding format inconsistencies, which were suggested as a result of the validation process, were incorporated in the succeeding draft of the instrument.

The instrument was further validated by field testing by five selected members of the business community who were not part of the sample. Four members of the Department's Advisory Committee and the Executive Director of the Monroeville Area Chamber of Commerce were asked to try out the questionnaire by completing the answers and consequently to criticize the instrument by indicating suggested additions, deletions, or corrections to the list. In the covering letter (Appendix B), field test participants were asked to indicate length of time needed to complete the questionnaire. Delivery of some of the criticism was by phone and in person, as well as by mail. Minor adjustments suggested as part of the field test were incorporated into the final draft of the instrument. This panel of five are identified by name, title, and affiliation in the Appendix section. The contact and recognition of these external resources as "partners" had the additional benefit of increasing the potential of institution-community relations.

Reliability. With the approval of MARP Committee member Dr. George Barton of Nova University, decision was reached not to test for reliability because of the very rapid changes in the word processing field and since this instrument was used only for this one survey. Hill and Kerber (1967) indicate:

> The reliability of the questionnaire depends upon the length of the instrument, the subject, the wording of items, the format and how the instrument motivates the respondent. Pilot studies, trial runs, and precautionary methods of construction based upon factors affecting questionnaire reliability are courses of action available to the researcher who wishes to construct a reliable questionnaire. (p. 64)

Since the questionnaire was given a trial run or field test to members of the Department Advisory Committee, the subject of reliability of the questionnaire has been addressed.

Design. It was the intent of the investigator to elicit responses based on fact rather than affective feeling; i.e., it was the writer's intention to stay with behaviors rather than opinions. All of the behaviors were presented on the questionnaire in the nominal level of measurement to be of approximately equal value. The questionnaire items were assembled into a survey instrument consisting of six sections in the following arrangement:

Section 1 -- Demographic data.

Sections 2, 3, 4 -- Cognitive and psychomotor behaviors associated with secretarial/clerical job performance in four job categories. Many of these items are related to word processing operations, for word processing approaches affect all four job categories.

Sections 5 and 6 -- Current and future status of word processing.

In the introductory directions on the instrument, since it was the intent of the investigator to elicit responses based on fact rather than affective feeling, participants were asked to respond according to the current actual situation in their own organization's offices. Also in the introductory paragraph, respondents were asked to keep in mind that sections 2, 3, and 4 contained characteristics of entry-level employees. Sections 2 and 3 which contained a selection of office skills and equipment used in the performance of four job categories did not include behaviors in the affective domain, for in this study no distinct effort was made to study work ethic, attitudes, and human relation skills which are recognized as being inherently central in the performance of the jobs. Nor were management and decision-making skills reviewed. Therefore, a statement was made in the introductory paragraph that the questionnaire did not list all of the job competencies associated with secretarial/clerical work, but that it rather focused on the major manipulative skills, computation skills, and language arts. Another direction was made to respond to the code representing "nonapplicable" if there was no such occupational position for which the questions were being asked. The content of the individual sections was as follows:

Section 1 contained six questions regarding demographic information, namely--company name and address; kind of company, i.e., production, retail, service; type of organization, i.e., headquarters or branch office; size of business, i.e., small for 20 or fewer employees, medium for 21-300 employees, large for over 300 employees; respondent's name and position in the company.

Sections 2 and 3 contained a division of labor--a listing of traditional and nontraditional knowledge and skills needed by entry-level secretarial/clerical personnel. Section 2 listed 33 items pertaining to office skills, and Section 3 listed 23 items regarding equipment and related systems used for job performance. Both the traditional skills and equipment, as well as those which may be changing because of word processing approaches, were listed. Therefore the questionnaire was constructed so that responses would yield a realistic analysis of the local office scenario. According to Modlin (1981),

> Tasks for competency-based instruction may be identified by taking an externally obtained task list and validating it in a local setting. This validation generally takes the form of a survey sent to business and industry. Tasks are listed on the left side of the survey form, and business representatives can indicate whether they feel each task is "Critical," "Nice but not necessary," or "Unimportant." (p. 3)

The writer generally followed this suggestion for format for Sections 2 and 3, but the values were paraphrased to be "required," "preferred but not required," and "not required," according to a model by Peterson, director of research and development of Gregg/McGraw-Hill, and Donin (1981, p. 27). A fourth category, "not applicable," also was added to create a 4-point scale. The value scale of 1-4 was repeated for each of four generic categories of secretarial/clerical work--namely, word processing operator (sometimes referred to as correspondence secretary), secretary (sometimes referred to as administrative secretary), stenographer, and clerk/typist. Directions were for respondents to circle one of the following codes for each questionnaire item for each job category:

1 = Preferred

2 = Preferred but not required

3 = Not required

4 = Not applicable (no such position).

Code "4" (nonapplicable) was to be circled if there was no such position in the organization.

Section 4 sought information regarding the two psychomotor skills of typewriting and shorthand. The questions were closed form regarding typewriting and shorthand writing rates and involved a respondent's rating each item for pertinence according to a 6-point scale for typewriting and a 5-point scale for shorthand, as follows:

Typewriting -- 1 - 60+ words a minute
2 = 50-59 wam
3 = 40-49 wam
4 = under 40 wam
5 = no need
6 = n/a (not applicable)

Shorthand -- 1 = 100+ words a minute
2 = 80-99 wam
3 = 60-79 wam
4 = no need
5 = n/a (not applicable).

The value scales were intended for each of the four generic secretarial/clerical job categories.

Section 5 contained questions regarding the current status of word processing in the respondents' organizations. These five questions were closed-form and involved Yes-No answers.

Section 6 contained a series of eight closed-form questions, some of which were partially modeled according to Rohrer's (1978, p. 120) dissertation. The first question was to determine whether respondents currently were using word processing equipment. The remaining seven statements were for respondents who already had word processing equipment in their organizations.

Collection of Data

As previously stated, data were collected by means of a mail survey. In addition to two routine mailings, a third mailing followed to survey units who so requested during the telephone follow-up process. Of the 197 survey units in the revised sample, there was a total of 153 respondents, yielding a response rate of 77.7%.

In December 1982, the instrument was initially sent to a randomized sample of 216 business organizations in the service area of the institution. The 50% random sample was taken from the Business and Membership Directory of the Monroeville Area Chamber of Commerce. Directions for completing the questionnaire were placed at the beginning of the instrument as well as in short prefaces throughout. The questionnaire was accompanied by a covering letter of explanation which was signed by the chief executive officer of the institution and which requested that the completed questionnaire be returned in ten days. Besides the questionnaire and cover letter, the first mailing included a stamped, addressed return envelope. At the end of this time, 32 completed returns were received. Two undelivered questionnaires, which were returned by the Post Office because of unknown forwarding address, were disqualified, thereby reducing the number of eligible participants in the sample to 214.

A second mailing was made to the 182 nonrespondents in January 1983. The second mailing contained the same enclosures as the first mailing, in addition to a second cover letter signed by the investigator with instructions that the completed questionnaire be returned in ten days. Appeal was made on the basis of a) better timing for response than the original mailing which was made just before Christmas holidays; b) protection of anonymity of response; c) expectation of response, even if parts of the questionnaire were to be marked as nonapplicable to the business situation. At the end of this time, 32 additional completed returns were received. Another undelivered questionnaire which was returned by the Post Office because of unknown forwarding address was disqualified, thereby reducing the number of eligible participants in the sample to 213.

Subsequently, in the process of telephoning the organizations which had not yet responded, in order to confirm receipt of the questionnaire, the investigator found that 16 more units of the sample had to be disqualified. The reasons were one of the following: discontinuation of the business, dual listing on the Chamber roster under another business name, or discontinuation of Chamber membership. These 16 disqualified units finalized the number of potential eligible participants in the sample to 197.

In many cases during the telephoning process to nonrespondents, the investigator found that the questionnaire had not been received by the survey units for a variety of reasons--e.g., turnover in personnel, change of address, and mail room error. Most of these times, the telephone correspondent asked for a replacement questionnaire, and a third mailing consequently was made to these 84 organizations. Some of the survey units did not request a third mailing but rather promised to return the copy with which they were still working.

In the phoning phase, one organization indicated that they didn't respond to the questionnaire at all because they consider attitude and human relations much moreso than manipulative skills in their employment of secretarial/clerical workers. They maintained that they themselves can instruct, and do instruct, their office workers in the manipulative skills. Since this study did not address the affective behaviors needed in job performance, the conclusion reached from the telephone response is that the questionnaire was nonapplicable to that business situation. For purposes of this study, this organization was considered a nonrespondent.

There were 89 respondents during this final telephoning phase of the collection process. Collection activities were concluded in February 1983, with a total response of 153 participants, or 77.7% of the revised sample of 197 potential participants.

All of the 153 responses were used in the demographic data section of Chapter IV to determine and present a profile of the business community in the service area of the institution. However, for the non-demographic data reported in Chapter IV, 114 (or 74.5%) of the 153 returns were usable; and 39 returns were not usable for questionnaire sections 2, 3, and 4 because most of the non-demographic part of the instrument was marked nonapplicable to the respondents' business situation. In all cases, the reason for nonapplicability was that since the organization did not employ outside office help because of the limited scope of the business, there were no secretarial/clerical employees in the organization. These 39 unusable returns for sections 2, 3, and 4 did not meet the criteria for eligibility, as stated previously in this chapter. The 114 usable returns for sections 2, 3, and 4, therefore, yielded a usable response rate of 74.5% of the total

153 respondents--or 72.2% of the finally revised sample size of the 158 eligible potential sample units. The data collection process is summarized as follows:

Selection of population	440	
Revision of population size	433	
Initial sample	216	
Disqualified units (because of ineligibility to meet inclusion criteria)	19	
Revised sample size	197	
Total respondents	153	(77.7% response rate based on sample size of 197)
Unusable sample units for questionnaire sections 2, 3, and 4 (because of ineligibility to meet inclusion criteria)	39	
Sample size or eligible potential participants for questionnaire sections 2, 3, and 4 (197 - 39)	158	
Usable responses for questionnaire sections 2, 3, and 4 (153 - 39)	114	(74.5% usable response rate of total 153 respondents, or 72.2% of 158 eligible participants)

Treatment of Data

Data analysis from the returned instrumentation was descriptive. The Nie, Hull, Jenkins, Steinbrenner, and Bent (1975) SPSS (Statistical Package of the Social Sciences) program was used for treatment of the data, for it facilitated the process of data analysis. As Mehallis (1981), director of institutional research at Broward Community College, recommended, the SPSS program was used to provide frequencies, percentages, mean scores, and standard deviations.

Resources at the University of Pittsburgh, including consultation at the Division of Measurement and Evaluation, facilitated the organization and analysis of the data. The computer processing was carried out at Datanetics of Pittsburgh, Pennsylvania.

Presentation of results is displayed in narrative and tabular form in Chapter IV. The most likely way of reporting the collected data was nominal, i.e., in terms of total numbers and percentages of respondents. According to Weisberg and Bowen (1977), statistical procedures usually begin "with counting and 'percentagizing' the responses to simple questions" (p. 104). Therefore by reporting results in simple percentages, or frequency distributions, practical significance was pointed out.

Results of questionnaire items which involved a respondent's rating an item according to its pertinence in a Likert-type scale were reported in terms of arithmetic mean response and standard deviation as well as frequency and percentage. In each section where a Likert-type scale was used, "1" represented high scale value, and successive numbers represented descending values. In the review of the individual responses or of the central values for a questionnaire item, the higher the scale value, the more frequent or more essential was a particular issue. The job performance skills in sections 2 and 3 of the questionnaire, therefore, were presented in rank order of mean response; and in the analysis, focus was on rank ordering. The report of variance was accomplished by the listing of standard deviations. Chi square tests of significance were inappropriate in the final data analysis. Further analysis was not necessary in order to make the report. The intent in this report was to convey the general thrust of the findings, and discrepancies relative to the system are reported.

The procedures involved in the treatment of the data are summarized as follows:

1. The collected data were computer processed via the SPSS package.

2. Numbers, simple frequency distributions, means, and standard deviations for questionnaire items were determined from the computer output and were examined.

3. Rank orders of means for selected sections were established.

4. Frequency distributions of the four generic secretarial/clerical job categories in the three sizes of business organization were crosstabbed and were examined.

5. Frequency distributions regarding the current status and five-year projection on use of word processing equipment, according to size of responding organization, were crosstabulated and were examined.

IV. PRESENTATION OF RESULTS

The purpose of this section is to report the results of the study, including analysis of the findings, based on a survey of the business community in the service area. It was important for the institution to be aware of the reality of entry-level job performance of secretarial/clerical employees and the extent to which the four generic job titles exist in the service area so that the curriculum could be verified. This study gave further evidence that some needs are more important than others (desired educational outcomes) for a beginning office employee to do successful work--that is, for what Kaufman (1979, p. 68) calls "external survival and contribution."

The instrument, which was mailed to a 50% random sample of the population of the Monroeville Area Chamber of Commerce, resulted in 153 respondents (or 77.7%) out of the random sample of 197. Following is a report of the findings from responses to the items in the instrument. Results are organized according to the sections of the questionnaire, to which the participants were asked to respond according to applicability. Section 1 involved demographic data which were based on a total of 153 respondents, and sections 2, 3, and 4 involved non-demographic data which were based on 114 usable returns.

In any item where there is a difference beteeen the number of reported responses and of the number of possible responses for each job category, nonresponse to that particular item is indicated. For ease of presentation of results, reference to some items from sections 2 and 3 of the questionnaire are in a shorter form than the original presentation in the instrument. Also for easy reference, items in the questionnaire have been numbered consecutively by section (See Appendix A).

Profile of Respondents

The first section of the questionnaire regarding demographic data resulted in an analysis of respondents with respect to size and nature of business and to type of organization and occupational position of the correspondent within the organization. Tables 2 and 3 display crosstabulations of the demographics. Chi square tests of significance were not appropriate. A profile of the business community, mainly regarding size of organization, was of interest so that the institution would be knowledgeable about the extent of prevailing practices and tendencies regarding current and projected use of word processing equipment in the majority of situations in the community.

Table 2 shows the profile of firms surveyed regarding size and nature of business. As the distribution shows, the size of organization with the largest number of returns was the small category, and the type of business with the largest number of returns was the service category of industry. Of the 153 respondents in the survey, 104 (or 68%) were from small organizations and 96 (or 62.7%) were from the service industries. Therefore, crosstabulated, the profile indicated that the small service organization was the highest response group at 70 (or 45.8%). Other responses are displayed in Table 2.

Table 2

Size and Nature of Responding Organizations
(N = 153)

Industry	Size Small	 Medium	 Large	Total
Production	7	5	1	13 (8.5%)
*Retail	25	15	1	41 (26.8%)
Service	70	16	10	96 (62.7%)
Unidentified	2	1	0	3 (2.6%)
Total	104 (68%)	37 (24.2%)	12 (7.8%)	153 (100%)

* Also includes wholesalers and manufacturers' representatives

Table 3

Occupational Position of Respondents and Type of Establishment
(N = 153)

	Headquarters	Branch	Unidentified	Total
Proprietor or Head of Organization	40	10	5	55 (35.9%)
Personnel Manager	9	4	0	13 (8.5%)
Office Manager or Head of Department	20	8	2	30 (19.6%)
Secretary or Assistant	21	9	2	32 (20.9%)
Other	8	9	2	19 (12.4%)
Unidentified	0	0	4	4 (2.6%)
Total	98 (64.1%)	40 (26.1%)	15 (9.8%)	153 (100%

As the distribution in Table 3 shows, 98 (or 64.1%) of the respondents who identified themselves as headquarters offices outnumbered those who identified themselves as branch offices. The occupational position with the highest response was the proprietor/head of organization. Therefore, crosstabulation shows that the proprietor/head of organization from headquarters was the group with the highest frequency of response at 40 (or 26.1%). Other responses are displayed in the table.

A demographic profile representing the cross sections of the highest frequencies of all demographies among the respondents was the proprietor/head of the small service industry which was a headquarters establishment.

Secretarial/Clerical Job Categories

Sections 2 and 3 of the questionnaire yielded information regarding specified job skills and equipment and related systems used in four generic categories of entry-level secretarial/clerical workers. These two sections also reported information regarding the existence or applicability of the following four generic job categories in the respondents' organizations: word processing operator, sometimes referred to as correspondence secretary; secretary, sometimes referred to as administrative secretary; stenographer; and clerk/typist.

In Table 4 responses regarding existence of the four job categories were crosstabulated according to size of the respondents' organizations. In the questionnaire, nonapplicability of a job category was indicated by response to code 4. The frequency distribution of responses according to size of firm was based on the total array of respondents in each demography of size who reported inclusion of a secretarial/clerical position in their organization, thereby indicating applicability of sections 2 and 3 of the questionnaire. These total frequencies were as follows: small, N = 67 (or 64.4% of the total 104 small-size survey respondents); medium, N = 35 (or 94.6% of the total 37 medium-size survey respondents); large, N = 12 (or 100% of the total 12 large-size survey respondents).

Table 4

Presence of Generic Job Categories in Responding Organizations

Size of Firm	W/P Operator	Secretary	Stenographer	Clerk/Typist
Small (N = 67)	10 (14.9%)	51 (76.1%)	10 (14.9%)	33 (49.2%)
Medium (N = 35)	12 (34.3%)	31 (88.6%)	8 (22.9%)	26 (74.3%)
Large (N = 12)	7 (58.3%)	11 (91.7%)	9 (75.0%)	10 (83.3%)
Total (N = 114)	29 (25.4%)	93 (81.6%)	27 (23.7%)	69 (60.5%)

Of the total 114 respondents reporting employment of secretarial/clerical personnel, as can be seen in Table 4, the position of secretary was the most prevalent among the businesses; of the total 114 respondents who reported employment of secretarial/clerical personnel, 81.6% indicated existence of the secretary job category. The next most prevalent category among the responding organizations was clerk/typist; word processing operator was next, followed by stenographer. These responses are detailed in the table. Crosstabulation in Table 4 also shows that the job category of secretary, followed by clerk/typist, also represents the highest frequency distribution of the four job categories in each size demography.

Regarding the existence of the word processing operator position, which is the newest of the secretarial/clerical job categories to enter the workplace, large businesses represented the group with the **highest** percentage of responding organizations who indicated existence of the word processing operator position; 58.3% reported existence of this job category.

Participants reported existence or nonexistence of the job categories in varying frequencies, as can be seen by the distributions in Table 4. Thirty-nine (or 25.5%) of the total 153 participants reported nonexistence of any of the four generic job categories in their organizations. Two of these thirty-nine were medium-sized firms and 37 were small firms. Most of the reasons offered for answering "nonapplicable" to the entire non-demographic part of the questionnaire, or to sections 2, 3, and 4, in particular, were that no clerical help was employed in the business because the proprietor handled what little clerical work there was and/or in some cases that the work was sent to outside services.

During the telephoning phase of the collecting procedures, one respondent, a personnel manager from a large company, affirmed that the job areas listed in the questionnaire were generic and were accurately categorized. Another personnel manager from a medium-size organization, during the telephoning phase of the collection process, also indicated that the four job areas were generic and were labeled correctly to include situations in most offices.

Basic Office and Equipment Skills

In the review of the findings, of special interest to the investigator were the data from the questionnaire items which pertained to the equipment and office skills which are particularly associated with word processing and office automation systems. For purposes of this study, these skills and this equipment are referred to as "nontraditional." However, the other items which may be regarded as "traditional" are also reported and analyzed, since word processing basically is involved in performance of most of the secretarial/clerical tasks.

Findings for sections 2 and 3 regarding specific office skills and equipment usage needed by entry-level workers are reported in separate rank order tables for each of the four job categories according to mean and standard deviation for each questionnaire item. Focus was on the rank order tables in the analysis of the data.

Included in Appendix C are summary tables listing total frequency distributions for items in questionnaire sections 2 and 3, which are reported separately for each of the four job categories. The responses only of the 114 organizations from Table 4 who indicated existence of the job categories in varying frequencies were considered in the computation of the percentages. The frequencies for these subgroups were: word processing operator, N = 29; secretary, N = 93; stenographer, N = 27; clerk/typist, N = 69. The responses are reported according to the three applicable scale values as follows: required; preferred but not required; not required or N/A.

Tables 5-8 display the individual skills from section 3 of the questionnaire in their rank order (highest to lowest) of importance, as determined from mean response for each item. Mean response and standard deviation are listed. In the computation of the mean responses, nonresponse and nonapplicability were removed, and the means were based solely on the responses to an item. No judgment was made regarding

Table 5

Office Skills for Word Processing Operator *
in Highest to Lowest Rank Order According to Mean Response **
(N = 29)

	Section 2--Item No. and Statement	Mean	Standard Deviation
33.	Listening (following directions)	1.037	0.192
1.	Keyboarding (typing)	1.138	0.516
30.	Proofreading	1.185	0.557
2.	Formatting from typed copy	1.286	0.659
3.	Formatting from written copy	1.286	0.659
4.	Formatting from rough draft	1.286	0.659
25.	Spelling	1.296	0.669
24.	Grammar, punctuation	1.333	0.679
28.	Comprehension	1.407	0.636
29.	Vocabulary	1.444	0.698
32.	Telephone communication	1.481	0.700
31.	Speech	1.630	0.792
26.	Basic writing skills	1.667	0.832
16.	Electronic filing	1.750	0.928
5.	Technical typing	1.786	0.917
11.	Data entry	1.821	0.945
15.	Traditional filing	1.893	0.956
10.	Computer literacy	1.966	0.906
12.	Business math	2.034	0.823
18.	Electronic copying and duplicating	2.037	0.898
27.	Original composition	2.037	0.898
22.	Machine dictation (e.g., Dictaphone)	2.286	0.854
7.	Legal typing	2.536	0.793
13.	Bookkeeping	2.536	0.693
17.	Traditional duplicating (Spirit, Mimeo masters)	2.593	0.797
9.	Computer fluency	2.621	0.677
19.	Symbol shorthand	2.630	0.688
14.	Accounting	2.714	0.659
6.	Medical typing	2.741	0.656
20.	Alphabet shorthand	2.821	0.476
21.	Machine shorthand (e.g., Stenotype)	2.857	0.448
8.	Phototypesetting	2.893	0.416
23.	Giving dictation	2.929	0.262

** Code: 1 = Required; 2 = Preferred but not required; 3 = Not required
* Sometimes referred to as Correspondence Secretary

Table 6

Office Skills for Secretary *
in Highest to Lowest Rank Order According to Mean Response **
(N = 93)

Section 2--Item No. and Statement	Mean	Standard Deviation
33. Listening (following directions)	1.066	0.327
24. Grammar, punctuation	1.187	0.492
25. Spelling	1.187	0.492
29. Vocabulary	1.187	0.469
32. Telephone communication	1.187	0.492
3. Formatting from written copy	1.195	0.546
31. Speech	1.198	0.477
30. Proofreading	1.233	0.562
28. Comprehension	1.242	0.057
2. Formatting from typed copy	1.267	0.640
1. Keyboarding (typing)	1.278	0.654
26. Basic writing skills	1.308	0.571
4. Formatting from rough draft	1.333	0.676
15. Traditional filing	1.344	0.706
27. Original composition	1.637	0.768
5. Technical typing	1.859	0.915
12. Business math	1.862	0.851
18. Electronic copying/duplicating	1.933	0.902
13. Bookkeeping	1.944	0.853
19. Symbol shorthand	2.067	0.863
14. Accounting	2.202	0.868
22. Machine dictation (e.g., Dictaphone)	2.227	0.840
17. Traditional duplicating (Spirit, Mimeo masters)	2.326	0.889
16. Electronic filing	2.483	0.776
11. Data entry	2.528	0.755
10. Computer literacy	2.535	0.793
20. Alphabet shorthand	2.602	0.670
7. Legal typing	2.659	0.682
6. Medical typing	2.675	0.079
23. Giving dictation	2.739	0.577
21. Machine shorthand (e.g., Stenotype)	2.747	0.595
9. Computer fluency	2.866	0.404
8. Phototypesetting	2.920	0.346

** Code: 1 = Required; 2 = Preferred but not required; 3 = Not required

* Sometimes referred to as Administrative Secretary

Table 7

Office Skills for Stenographer
in Highest to Lowest Rank Order According to Mean Response *
(N = 27)

Section 2--Item No. and Statement	Mean	Standard Deviation
33. Listening (following directions)	1.077	0.272
3. Formatting from written copy	1.308	0.679
25. Spelling	1.308	0.618
32. Telephone communication	1.308	0.618
2. Formatting from typed copy	1.346	0.689
4. Formatting from rough draft	1.385	0.752
29. Vocabulary	1.385	0.571
30. Proofreading	1.385	0.637
1. Keyboarding (typing)	1.440	0.768
15. Traditional filing	1.462	0.761
31. Speech	1.462	0.647
24. Grammar, punctuation	1.536	0.793
26. Basic writing skills	1.577	0.703
28. Comprehension	1.615	0.752
18. Electronic copying and duplicating	1.654	0.689
19. Symbol shorthand	1.731	0.724
27. Original composition	1.962	0.774
5. Technical typing	2.038	0.824
12. Business math	2.038	0.774
17. Traditional duplicating (Spirit, Mimeo masters)	2.038	0.916
22. Machine dictation (e.g., Dictaphone)	2.115	0.761
16. Electronic filing	2.308	0.788
11. Data entry	2.320	0.802
20. Alphabet shorthand	2.346	0.797
21. Machine shorthand (e.g., Stenotype)	2.462	0.811
10. Computer literacy	2.520	0.823
14. Accounting	2.615	0.637
7. Legal typing	2.654	0.629
13. Bookkeeping	2.654	0.562
9. Computer fluency	2.808	0.402
6. Medical typing	2.846	0.464
23. Giving dictation	2.846	0.464
8. Phototypesetting	2.962	0.196

* Code: 1 = Required; 2 = Preferred but not required; 3 = Not required

Table 8

Office Skills for Clerk/Typist in Highest to Lowest Rank Order According to Mean Response * (N = 69)

Section 2--Item No. and Statement	Mean	Standard Deviation
33. Listening (following directions)	1.104	0.354
1. Keyboarding (typing)	1.381	0.658
32. Telephone communication	1.388	0.673
3. Formatting from written copy	1.462	0.686
31. Speech	1.478	0.704
15. Traditional filing	1.493	0.786
2. Formatting from typed copy	1.523	0.773
25. Spelling	1.537	0.745
4. Formatting from rough draft	1.554	0.751
24. Grammar, punctuation	1.576	0.745
29. Vocabulary	1.582	0.721
30. Proofreading	1.582	0.801
28. Comprehension	1.642	0.753
26. Basic writing skills	1.761	0.761
27. Original composition	2.060	0.814
18. Electronic copying and duplicating	2.090	0.917
12. Business math	2.132	0.827
5. Technical typing	2.250	0.816
13. Bookkeeping	2.313	0.802
17. Traditional duplicating (Spirit, Mimeo masters)	2.418	0.855
14. Accounting	2.493	0.704
11. Data entry	2.574	0.719
10. Computer literacy	2.672	0.660
16. Electronic filing	2.676	0.633
22. Machine dictation (e.g., Dictaphone)	2.687	0.633
19. Symbol shorthand	2.697	0.581
7. Legal typing	2.788	0.512
20. Alphabet shorthand	2.851	0.399
21. Machine shorthand (e.g., Stenotype)	2.909	0.290
8. Phototypesetting	2.939	0.240
23. Giving dictation	2.940	0.239
6. Medical typing	2.955	0.274
9. Computer fluency	2.985	0.123

* Code: 1 = Required; 2 = Preferred but not required; 3 = Not required

importance of items with identical means, and these items are listed according to numerical order of questionnaire item. A separate table is presented for each job category.

From an overall view of the data from the rank order of mean responses to the 33 listed items in Tables 5-8, some generalizations emerge. Thirteen of the total skills were required for the WP operator, nine of which were in the language arts group and four of which were in the typewriting cluster of activities. Fifteen of the skills were required for the secretary, ten of which were in the language arts group and four of which were in the typewriting cluster. Fifteen of the skills were required for the stenographer, nine of which were in the language arts group and four of which were in the typewriting cluster. Thirteen of the skills were required for the clerk/typist, eight of which were in the language arts group and four of which were in the typewriting cluster. Interpretation of mean responses was based on the following scale: 1.00 - 1.66 = required; 1.67 - 2.33 = preferred but not required; 2.34 - 3.00 = not required.

All of these most important skills are skills which have been traditionally associated with secretarial/clerical job performance, except for one entry in the case of the stenographer (electronic copying/duplicating). Evidently, the language arts cluster and the typewriting activities of keyboarding and formatting represented the skills which the respondents most consistently perceived to be the most important for all four job categories. Noteworthy is the fact that the most important skill in each of the four job categories was listening (following directions).

Even though the questionnaire items were closed form, there was an unsolicited commentary by a respondent regarding skills, and that was elicited by the items regarding the language arts of writing, reading, speaking, and listening: "Please emphasize more!"

There was distinct concurrence in the literature regarding the importance of English and communication skills for secretarial/clerical workers. For instance, the findings and conclusions in the Scriven et al. (1981) report of the Delta Pi Epsilon study regarding word processing, as well as in the doctoral studies done by Powell (1975), Kutie (1977), Rohrer (1978), Moody (1978), Ettinger (1980), and Dennee (1981)--all reinforced this analysis and are reported in Chapter II.

In no case was transcription via shorthand or via machine dictation perceived as required or very important for any job. Although shorthand and machine dictation/transcription were preferred but not required for the secretary and the stenographer, these skills were not required or preferred for the clerk/typist. Shorthand was not required for the word processing operator position, but transcription via machine dictation was preferred. Shorthand was a more important skill for the stenographer than it was for the secretary. Shorthand was more preferred than machine transcription for the stenographer, and shorthand was only slightly more preferred than machine transcription for the secretary. Rohrer (p. 91) in her doctoral study also found that shorthand was clearly not essential so far as relevance to WP equipment operation is concerned.

During the telephoning activities connected with the data collection process, a personnel manager from one medium-sized company indicated that in this company "bosses resist dictating into a machine" and that they want the person-to-person contact for dictation. This person reported that "there are plenty of people at the two ends--i.e, word processing operator and clerk/typist, but not enough who can take shorthand," which they find is very desirable for their secretaries.

Evidently, none of the three computation skills of business math, bookkeeping, and accounting were required in any of the four job categories. Business math was a preferred skill for all four job categories, with a mean score range of 1.862 to 2.132. For the secretary, though, also preferred were accounting (mean = 2.202) and bookkeeping (mean = 1.944), whereas these skills were not preferred for the word processing operator and the stenographer. Bookkeeping was preferred (2.313) for the clerk/typist, whereas accounting was not preferred or required.

Traditional filing was reported as being required in the secretary, stenographer, and clerk/typist job categories with a mean score range of 1.344 to 1.493 and was more important than electronic filing, which was in the range of 2.308 to 2.676. However, for the word processing operator position, both electronic filing and traditional filing were preferred but not required, with electronic filing slightly more important (mean = 1.750) than traditional filing (mean = 1.893).

Traditional copying/duplicating (spirit and mimeograph masters) was reported at the preferred level for just two job categories--secretary and stenographer--with no requirement or preference indicated for the other two jobs. Electronic copying/duplicating, however, was reported as preferred for all four job categories.

Following in Table 9 is the report on selected nontraditional "new office skills which may become part of the contemporary secretarial/clerical worker's job because of recent word processing approaches which have been introduced into office systems. The mean responses regarding need for these nontraditional skills in the four generic job categories were extracted from rank order tables 5-8 and are highlighted in Table 9.

Table 9

* Mean Responses Regarding Selected Nontraditional Office Skills

Q. Item	Skill	W/P Oper.	Sec'y	Steno.	Clerk/Typist
8	Phototypesetting	2.893	2.920	2.962	2.939
9	Computer fluency	2.621	2.865	2.808	2.985
10	Computer literacy	1.966	2.535	2.520	2.672
11	Data entry	1.821	2.528	2.320	2.574
16	Electronic filing	1.750	2.483	2.308	2.676
18	Electronic copying/ duplicating	2.037	1.933	1.654	2.090

* Code: 1 = Required; 2 = Preferred but not required; 3 = Not required

According to Table 9, the nontraditional skills which were reported at least at the preferred level for the entry-level secretarial/clerical worker are restated according to importance for each of the four job categories, as follows:

Word Processing Operator: electronic filing, data entry, computer literacy, electronic copying/duplicating

Secretary: electronic copying/duplicating

Stenographer: electronic copying/duplicating, electronic filing, data entry

Clerk/Typist: electronic copying/duplicating.

Evidently, only one of these selected nontraditional skills was yet required of entry-level secretarial/clerical employees in any of the four job categories--namely, electronic copying/duplicating. This skill is the only one which was consistently reported as at least preferred in all four job categories.

Tables 10-13 display the individual items regarding equipment usage and related systems from section 3 of the questionnaire in their rank order (high to low) of importance as determined from mean response to each questionnaire item. Mean and standard deviation are reported. In the computation of mean responses, nonresponse and nonapplicability were removed. A separate table is presented for each job category.

According to the rank order of mean responses to the 23 listed items in Tables 10-13, the most important equipment and related system skills which were perceived by respondents to be required of secretarial/clerical workers follow in their rank orders:

WP Operator: electronic visual display CRT typewriter, dry copy duplicator, electric typewriter

Secretary: electric typewriter, conventional mail, dry copy duplicator, traditional calculator

Stenographer: electric typewriter, dry copy duplicator, conventional mail

Clerk/Typist: conventional mail, electric typewriter, traditional calculator, dry copy duplicator.

Interpretation of mean response was based on the following scale: 1.00 - 1.66 = required; 1.67 - 2.33 = preferred but not required; 2.34 - 3.00 = not required.

From an overview of the data, some generalizations emerge. All of the most important required equipment/systems, except the CRT visual

Table 10

Equipment and Related Systems Used by Word Processing Operator *
in Highest to Lowest Rank Order According to Mean Response **
(N = 29)

Section 3--Item No. and Statement		Mean	Standard Deviation
4.	Electronic visual display CRT	1.444	0.801
22.	Dry copy duplicator	1.444	0.751
2.	Electric typewriter	1.462	0.706
9.	Data entry terminal	1.692	0.928
16.	Conventional mail	1.852	0.907
6.	"Intelligent" word processor	1.889	0.974
15.	Electronic calculator with memory	1.889	0.801
14.	Traditional calculator	2.038	0.916
7.	Traditional machine dictation	2.259	0.859
3.	IBM Executive typewriter	2.280	0.843
10.	Desk-top computer	2.400	0.764
5.	Printed copy text-editing typewriter	2.444	0.847
17.	Electronic mail	2.593	0.747
23.	"Intelligent" copier/duplicator	2.593	0.797
8.	Electronic machine dictation equipment	2.615	0.752
12.	OCR (Optical Character Reader)	2.704	0.669
18.	Teleconferencing	2.769	0.587
20.	Mimeograph	2.769	0.587
13.	Computer Output Micrographics	2.815	0.557
1.	Manual typewriter	2.840	0.473
11.	Electronic dictionary	2.889	0.424
21.	Spirit duplicator	2.923	0.272
19.	Other high-tech distance telecommunications	2.963	0.192

** Code: 1 = Required; 2 = Preferred but not required; 3 = Not required

* Sometimes referred to as Correspondence Secretary

Table 11

Equipment and Related Systems Used by Secretary *
in Highest to Lowest Rank Order According to Mean Response **
(N = 93)

Section 3--Item No. and Statement		Mean	Standard Deviation
2.	Electric typewriter	1.267	0.632
16.	Conventional mail	1.300	0.589
22.	Dry copy duplicator	1.522	0.810
14.	Traditional calculator	1.602	0.810
15.	Electronic calculator with memory	1.681	0.855
3.	IBM Executive typewriter	2.122	0.908
7.	Traditional machine dictation	2.211	0.855
9.	Data entry terminal	2.422	0.807
4.	Electronic visual display CRT	2.437	0.788
1.	Manual typewriter	2.451	0.877
20.	Mimeograph	2.578	0.779
21.	Spirit duplicator	2.611	0.730
6.	"Intelligent" word processor	2.659	0.641
17.	Electronic mail	2.678	0.684
23.	"Intelligent" copier/duplicator	2.693	0.684
18.	Teleconferencing	2.697	0.647
10.	Desk-top computer	2.711	0.566
5.	Printed copy text-editing typewriter	2.800	0.483
8.	Electronic machine dictation equipment	2.802	0.477
13.	Computer Output Micrographics	2.899	0.371
12.	OCR (Optical Character Reader)	2.900	0.337
19.	Other high-tech distance telecommunications	2.910	0.358
11.	Electronic dictionary	2.978	0.534

** Code: 1 = Required; 2 = Preferred but not required; 3 = Not required

* Sometimes referred to as Administrative Secretary

Table 12

Equipment and Related Systems Used by Stenographer
in Highest to Lowest Rank Order According to Mean Response **
(N = 27)

Section 3--Item No. and Statement	Mean	Standard Deviation
2. Electric typewriter	1.292	0.550
22. Dry copy duplicator	1.320	0.557
16. Conventional mail	1.385	0.637
3. IBM Executive typewriter	1.696	0.765
15. Electronic calculator with memory	1.769	0.765
14. Traditional calculator	1.880	0.781
7. Traditional machine dictation	2.000	0.849
9. Data entry terminal	2.308	0.838
23. "Intelligent" copier/duplicator	2.346	0.846
4. Electronic visual display CRT	2.360	0.757
1. Manual typewriter	2.409	0.854
17. Electronic mail	2.500	0.812
6. "Intelligent" word processor	2.560	0.651
21. Spirit duplicator	2.560	0.651
8. Electronic machine dictation equipment	2.577	0.643
18. Teleconferencing	2.600	0.645
20. Mimeograph	2.600	0.645
5. Printed copy text-editing typewriter	2.640	0.569
10. Desk-top computer	2.654	0.629
13. Computer Output Micrographics	2.808	0.491
12. OCR (Optical Character Reader)	2.846	0.368
11. Electronic dictionary	2.923	0.272
19. Other high-tech distance telecommunications	2.923	0.272

** Code: 1 = Required; 2 = Preferred but not required;
3 = Not required

Table 13

Equipment and Related Systems Used by Clerk/Typist in Highest to Lowest Rank Order According to Mean Response **
(N = 69)

Section 3--Item No. and Statement	Mean	Standard Deviation
16. Conventional Mail	1.439	0.704
2. Electric typewriter	1.500	0.729
14. Traditional calculator	1.621	0.837
22. Dry copy duplicator	1.625	0.787
15. Electronic calculator with memory	1.809	0.851
3. IBM Executive typewriter	2.238	0.797
1. Manual typewriter	2.417	0.809
9. Data entry terminal	2.632	0.644
7. Traditional machine dictation	2.682	0.660
4. Electronic visual display CRT	2.687	0.608
20. Mimeograph	2.703	0.609
21. Spirit duplicator	2.703	0.609
23. "Intelligent" copier/duplicator	2.738	0.594
17. Electronic mail	2.836	0.539
18. Teleconferencing	2.848	0.472
6. "Intelligent" word processor	2.866	0.423
10. Desk-top computer	2.882	0.406
5. Printed copy text-editing typewriter	2.896	0.308
8. Electronic machine dictation equipment	2.923	0.322
13. Computer Output Micrographics	2.956	0.270
11. Electronic dictionary	2.970	0.244
12. OCR (Optical Character Reader)	2.970	0.171
19. Other high-tech distance telecommunications	2.970	0.246

** Code: 1 = Required; 2 = Preferred but not required; 3 = Not required display typewriter, are media which have been traditionally associated with secretarial/clerical job performance. The most commonly important equipment or system was the electric typewriter--which was required in all four job categories--followed by conventional mail systems and dry copy duplicators.

Usage of the IBM Executive typewriter, although not required, was preferred in all four job categories, especially in the stenographer category, followed by the secretary category. It appeared among the six most important equipment/systems for the three job categories of secretary, stenographer, and clerk/typist and in each case superseded the visual display (CRT) text-editing typewriter. Operation of the traditional mimeograph and spirit duplicating equipment was not perceived to be important to respondents, for it was reported as not required or even preferred by local employers in any of the four job categories.

Following in Table 14 is a report on selected nontraditional "new" equipment and related systems which may be part of the contemporary secretarial/clerical worker's job because of word processing approaches which have been introduced into office systems. The mean responses regarding need for the nontraditional equipment and related systems in the four generic job categories were extracted from rank order tables 10-13 and are highlighted in Table 14.

As can be seen in Table 14, the nontraditional media which were reported as being important for the secretarial/clerical worker at least at the preferred level, according to importance, are the following:

WP Operator: visual display (CRT), data entry terminal, electronic calculator with memory, intelligent text-editing word processor

Secretary: electronic calculator with memory

Stenographer: electronic calculator with memory, data entry terminal

Clerk/Typist: electronic calculator with memory.

Evidently the only nontraditional equipment that was required was the visual display (CRT) text-editing typewriter for the WP operator. Also, more nontraditional equipment/systems were required or preferred for the WP operator than for any other job category.

Table 14

Mean Responses Regarding Usage of
Selected Nontraditional Equipment and Related Systems

Q. Item	Equipment	WP Oper.	Sec'y	Steno.	Clerk/Typist
4	Visual display (CRT)	1.444	2.437	2.360	2.687
5	Printed copy text-editor	2.444	2.800	2.640	2.896
6	Intelligent text-editing word processor	1.889	2.659	2.560	2.866
8	Electronic machine dictation equipment	2.615	2.802	2.577	2.923
9	Data entry terminal	1.692	2.422	2.308	2.632
10.	Desk-top computer	2.400	2.711	2.654	2.882
11.	Electronic dictionary	2.889	2.978	2.923	2.970
12.	Optical Character Reader	2.704	2.900	2.846	2.970
13.	Computer Output Micrographics	2.815	2.899	2.808	2.956
15.	Electronic Calculator	1.889	1.681	1.769	1.809
17	Electronic Mail and Message Systems	2.593	2.678	2.500	2.836
18.	Teleconferencing	2.769	2.697	2.600	2.848
19.	Other high-tech telecommunications	2.769	2.910	2.923	2.970
23	Intelligent copiers	2.593	2.693	2.346	2.738

Even though the usage of the high-tech distance communications cluster was reported as not important in the offices of the service area, some respondents did report usage. Table 15 displays the frequency distribution of the respondents who reported using the various systems at minimally the preferred level in each job category. These advanced systems of communications are being used elsewhere as well. For instance, in a study from a randomly selected sample of approximately 300 executives/managers, administrative support personnel, and word/information processing specialists, Arnston (1983, p. 7) found "that the timely distribution of documents is an increasingly important concern to business and industry" and that 34% of the organizations employing the people who were interviewed used telecommunications to disseminate information. "This suggests a greater need for telecommunications training in educational facilities."

Table 15

Use of High-Tech Distance Telecommunications Systems by Entry-Level Secretarial/Clerical Employees in Responding Organizations

	Telecommunications System					
	Electronic Mail		Teleconferencing		Other	
Job Category	No.	%	No.	%	No.	%
WP Operator (N = 29)	7	24.1	4	13.8	1	3.4
Secretary (N = 93)	18	19.4	18	19.4	6	6.5
Stenographer (N = 27)	8	29.6	8	29.6	2	7.4
Clerk/Typist (N = 69)	6	8.7	7	10.1	1	1.4

Typewriting and Shorthand Requirements

Information from section 4 of the questionnaire regarding typewriting and shorthand requirements in terms of writing rates for each of the four entry-level secretarial office workers is reported. Data are presented in terms of frequency distribution of responses; mean responses are not reported, for the mean is not meaningful for this categorical data. Table 16 contains information regarding typewriting requirements, and Table 17 contains information regarding shorthand requirements. The report is based on data from the following 114 participants who responded to this section in the following frequencies and who therefore became the subgroups upon which the percentages were computed: word processing operator = 29; secretary = 93; stenographer = 27; clerk/typist = 69.

As can be seen from the frequency distribution in Table 16, the ranges representing the most frequently reported typing rates for each job category at entry level were as follows:

WP Operator:	60+ words a minute
Secretary:	60+ wam
Stenographer:	50-59 wam
Clerk/Typist:	50-59 wam.

According to the frequency distribution of the subgroup with the word processing operator job category, the majority (58.6%) indicated no need of shorthand writing rates for WP operators. Of those respondents who did want some writing rate, the 80-99 wam answer was indicated most frequently by 27.6% of this subgroup.

About one-half of the subgroup (N = 93) with the secretary job category responded to importance of writing rate for secretaries by indi-

Table 16

Frequency Distribution of Responses Regarding Typewriting Rate Requirements for Four Job Categories

	60+ wam		50-59 wam		40-49 wam		Under 40 wam		No Need		No Response	
Job Category	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
WP Operator (N = 29)	15	51.7	8	27.6	2	6.9	2	6.9	--	--	2	6.9
Secretary N = 93	45	48.4	19	20.4	12	12.9	8	8.6	6	6.5	3	3.2
Stenographer (N = 27)	8	29.6	14	51.9	2	7.4	1	3.7	1	3.7	1	3.7
Clerk/Typist (N = 69)	7	10.1	24	34.8	21	30.4	8	11.6	5	7.3	4	5.8
Total (N = 114)	75		65		37		19		12		10	

cating the desirable rate. Of these respondents, the most frequently reported rate by 23.7% of the subgroup was 80-99 words a minute. As evidenced in the table, 48.3% responded to the "no need" category for writing rate.

Writing rates for stenographers were reported by a majority (74.1%) of the subgroup (N = 27) of respondents with this job category. This percentage was markedly greater than the majority who had indicated rates for the secretary. The writing rate of 80-99 words a minute was most frequently expected by 44.5% of the employers of stenographers.

The overwhelming majority, in fact, over four-fifths of the subgroup who had the clerk/typist job category, reported no need of any shorthand writing rate. Of those 11.6% who did report an expected writing rate, the most frequently reported rate was 80-99 words a minute.

Clearly the most frequently reported writing rate in any of the job categories was 80-99 words a minute.

Table 17

Frequency Distribution of Responses Regarding Shorthand Dictation Rates for Four Job Categories

	100+ wam		80-99 wam		60-79 wam		No Need		No Response	
Job Category	No.	%	No.	%	No.	%	No.	%	No.	%
WP Operator (N = 29)	1	3.4	8	27.6	--	--	17	58.6	3	10.4
Secretary (N = 93)	15	16.1	22	23.7	9	9.7	45	48.3	2	2.2
Stenographer (N = 27)	1	3.7	12	44.5	7	25.9	6	22.2	1	3.7
Clerk/Typist (N = 69)	1	1.5	6	8.7	1	1.4	57	82.6	4	5.8
Total (N = 114)	18		48		17		125		10	

Current Status of Word Processing

The data from section 5 of the questionnaire presented general information regarding the current status of word processing in the respondents' organizations. Percentages were based on the total 153 participants. In any item where there is a difference between the number of reported responses and the number of possible responses, nonresponse to that item is indicated. The respondents replied as follows to the five closed-form questions involving Yes-No answers:

1. "Do you have a separate (centralized) word processing department or center which serves principals (originators of documents) in your organization?" Response frequencies were 21 (13.7%) "yes" and 99 (64.7%) "no."

2. "Do you look for a prospective hiree to be trained to use a specific brand of W/P equipment?" Replies were 14 (9.2%) "yes" and 100 (65.4%) "no."

3. "Do you rather look for prospective hirees to have hands-on experience on any kind of W/P equipment with the expectation that the hirees will adapt themselves to the brand you use?" Replies were 35 (22.9%) "yes" and 77 (50.3%) "no."

4. "Do you rather look for a hiree to just understand word processing concepts generally?" Replies were 23 (15.0%) "yes" and 84 (54.9%) "no."

5. "Is it unnecessary for the hiree to have any understanding of word processing?" Replies were 37 (24.2%) "yes" and 71 (46.4%) "no."

From an overview of the data, the following generalizations emerge. The majority of responding organizations did not have a separate or centralized word processing department. Although the majority of respondents did not look for a prospective hiree to have any advance W/P equipment training, or even an understanding of word processing, of the three options (questions 2, 3, 4), more respondents (22.9%) preferred that the hirees have hands-on experience on any kind of W/P equipment with the expectation that the hiree will become adapted to the brand in use. Analysis of question 5 is that in the absence of the options regarding hands-on experience of some sort, 46.4% of the respondents preferred hirees to have at least an understanding of word processing.

Projected Usage and Applications of WP Equipment

Data from section 6 of the questionnaire revealed information regarding respondents' perceptions of trends for a five-year projection of the use and applications of word processing equipment. These data were based on 153 responses. Table 18 shows crosstabulated responses, according to size of responding organizations, regarding their current inclusion or exclusion of word processing equipment.

Although 87 (or 56.9%) of the 153 respondents indicated that they did not currently have word processing equipment, 37 of them (or 24.2%) indicated that they have intention of including word processing equipment within the next five years. Twenty-seven (17.6%) of all respondents indicated that they already are using word processing equipment. Therefore 64 (or 41.8%) either already have or intend to introduce word processing equipment.

From an overall view of the data, these generalizations emerge. The large company subgroup (N = 12) had the highest percentage (50%) of organizations who currently use word processing equipment. They also represented the group with the highest percentage (41.7%) of organizations who plan to include word processing equipment within the next five years. They also represented the size demography with the highest combined percentage (91.7%) of current and projected expanded usage of word processing equipment. Medium-size and small organizations followed in descending order regarding current and projected expanded usage of word processing equipment.

Table 18

Frequency Distribution of Current and Five-Year Projected Usage of Word Processing Equipment in Responding Organizations (N = 153)

	Size of Organization			
Status	Small (N = 104)	Medium (N = 37)	Large (N = 12)	Total (N = 153)
Current nonexistence of WP equipment				
Projected inclusion. .	24 (23.1%)	8 (21.6%)	5 (41.7%)	37 (24.2%)
Projected exclusion. .	34 (32.7%)	15 (40.5%)	1 (8.3%)	50 (32.7%)
Current existence of WP equipment.	9 (8.7%)	12 (32.4%)	6 (50.0%)	27 (17.6%)
Nonresponse or nonapplicability.	37 (35.6%)	2 (5.4%)	0	39 (25.5%)
Total respondents.	104	37	12	153 (100%)

Of the 27 respondents indicating that their organizations already had some WP equipment by responding to the second part (questions 2-8) of section 6 of the questionnaire, the opinions of the respondents regarding expansion of WP activities in the next five years indicated a

Table 19

Frequency Distribution of Responding Organizations with WP Equipment Regarding Future Applications
(N = 27)

	Anticipated Change									
	Will Increase		Will not Change		Will Decrease		Will Be Introduced		Is Undetermined	
Section 6--Item No. and Statement	No.	%	No.	%	No.	%	No.	%	No.	%
2. No. of WP equipped stations	17	63.0	10	37.0	--	--	--	--	--	--
3. Volume of typing tasks processed on WP equipment	23	85.2	3	11.1	--	--	--	--	1	3.7
4. Volume of typing tasks from dictation media processed on WP equipment	12	44.4	7	25.9	--	--	2	7.4	6	22.2
5. Interfacing of present WP capabilities with mainframe computer or telecommunicating equipment	16	59.3	5	18.5	--	--	4	14.8	2	7.4
6. No. of employed WP operators (all levels)	16	59.3	9	33.3	--	--	1	3.7	1	7.4
7. On-site in-service training regarding WP equipment	18	66.7	6	22.2	--	--	--	--	3	11.1
8. Off-site in-service training regarding WP equipment	10	37.0	9	33.3	2	7.4	1	3.7	5	18.5

marked trend towards increasing all W/P activities. Table 19 displays the data regarding trends in selected activities. The activity with the highest frequency of response was the increase in item no. 3, "volume of typing tasks processed on W/P equipment," reported by 85.2% of the respondents, followed by item no. 7, "on-site in-service training" by 66.7% of the resondents. Decline in any listed W/P activity was not indicated except for item no. 8, where 7.4% of respondents reported decrease in off-site in-service training.

V. SUMMARY, CONCLUSIONS, RECOMMENDATIONS

Purpose

The problem of this study was to determine the technical knowledge and skills which are now needed by student clients as they prepare to enter specific secretarial/clerical roles or settings in local offices where demands may be changing because of word processing and automated systems approaches. A related problem was to ascertain the perceptions of the local business community regarding the current and future status of word processing in their organizations. An anticipated benefit of this study is the potential for verification and/or upgrading of the curriculum in the Department of Office Adminisiration at Boyce Campus of Community College of Allegheny County in response to the office systems trends of the '80s. The ultimate purpose of the project, therefore, was to facilitate equipping Office Administration students with employable skills that will satisfy expectations of the business community in the eastern suburban Pittsburgh area in the immediate years ahead.

The question for the survey was: What technical skills and knowledge are currently needed for employment at entry-level secretarial/clerical occupations in the local business community? A related question was: What is the current and perceived future status of word processing approaches in the offices of the service area? Some of the subquestions which were addressed are: To what extent are the three traditional job categories of secretary, stenographer, and clerk/typist present in the service area? To what extent is the more recent nontraditional job category of word processing operator applicable in the local office environment? What typing rates, if any, are expected? What shorthand rates, if any, are expected? How important are the traditional office skills? How important are other "new" office skills, especially those associated with word processing? How important are selected types of equipment and related systems in secretarial/clerical job performance?

Methodology

To procure this information for this descriptive research, a survey was organized and conducted. A questionnaire was developed and was mailed to a sample of the business community in the service area of the institution. The population consisted of the membership of the Monroeville area Chamber of Commerce which serves the eastern suburban Pittsburgh region.

An assessment instrument had to be prepared by this investigator to suit the questions of the study. The items on the three-page survey instrument, which consisted of six sections, were based on a review of the professional literature. Section 1 presented a profile of respondents. The remaining five sections regarding non-demographic data contained closed-form questions. Sections 2 and 3 determined existence of four generic categories in the secretarial/clerical occupational cluster--namely, word processing operator (sometimes referred to as correspondence secretary), secretary (sometimes referred to as administrative secretary), stenographer, and clerk/typist. These sections also identified the major language, computation, and manipulative skills as well as the equipment and related systems used in performance in each of the four categories. No attempt was made to include affective behaviors and decision-making skills. Section 4 identified typewriting and shorthand rates in each job category. Sections 5 and 6 identified perceptions about current status and future trends regarding inclusion of word processing approaches in office systems.

After the questionnaire was validated and field tested, it was mailed with a letter of explanation and a self-addressed envelope to 216 businesses which represented a 50% random sample of the population. For purposes of this survey, eligibility for inclusion in the sample was determined by a) current (1982) membership in the Monroeville Area Chamber of Commerce; b) "in business" status of organization. Usability of response for questionnaire sections 2, 3, and 4 was determined by employment in the responding organization of some kind of secretarial/clerical help. In the initial determination of the random sample, the assumption was made that all of these conditions existed.

After two follow-ups, including telephoning, 153 organizations had responded. Since 19 sample units were disqualified during the collection process, the response rate of 77.7% was based on a sample size of 197. However, for non-demographic sections 2, 3, and 4, 114 (or 74.5%) of the 153 returns were applicable and usable; and 39 returns were not totally usable because they did not meet the criteria for eligibility. The 114 usable returns for sections 2, 3, and 4 therefore yielded a usable response rate of 74.5% of the total 153 respondents--or 72.2% of the further revised sample of 158 eligible potential sample units.

Data analysis from the returned instrumentation was descriptive, and the Nie et al. (1975) SPSS program was used to provide frequencies, percentages, mean scores, and standard deviations. After consultations at the University of Pittsburgh, responses to the questionnaire were computer processed through Datanetics of Pittsburgh, Pennsylvania, who also aided in organization of the results.

In the analysis, intention was to point out practical significance and to convey the general thrust of the findings. The total responses were analyzed in several ways. The numbers of participants and their responses were described and illustrated in tables in terms of frequencies and percentages for each of the six sections of the questionnaire. In addition, data from sections 2 and 3 of the questionnaire, where a Likert-type scale was used, were reported in terms of mean scores and standard deviations. Analysis and interpretation were focused on the rank ordering of the skills and equipment used in secretarial/clerical job performance at entry level. Also, analysis was made of importance of selected nontraditional skills and equipment which were extracted from sections 2 and 3.

The rank ordering of the skills and equipment and related systems needed in the four job categories was particularly useful so that verification as well as discrepancies relative to the system could be reported--i.e., so that appropriate conclusions and recommendations for curriculum verification and/or change could be made.

Crosstabulations based on frequency distribution of responses were made of some of the demographic data in section 1 in order to determine a profile of the business community in the service area. Crosstabulations based on frequency distributions, according to size of organization, were also made of the data in section 6 regarding current status and future plans regarding inclusion of word processing equipment.

A profile of the business community, mainly regarding size of organization, was of interest so that the institution would be knowledgeable about the extent of prevailing practices and tendencies as they exist in the majority of situations in the community.

Findings

Findings of this research project may be generalized to the entire business community in the service area of Boyce Campus of Community College of Allegheny County. As Kaufman (1981, p. 262) says, since "survey respondents can be said to be selected at random, the results of the survey can be assumed to be 'like' those of the population as a whole."

Analysis of the survey was based on data from responses as follows:

a) For section 1 of the questionnaire -- from the total 153 respondents, all of whom were used in creating the profile of the business community in the service area of the institution.

b) For sections 5 and 6 -- from the total 153 respondents regarding current status and future trends in the use and applications of WP equipment.

c) For sections 2, 3, and 4 -- from 114 applicable respondents, subgroups of whom indicated applicability of the four generic secretarial/clerical job categories in their organizations in varying frequencies.

A profile representing the cross sections of the highest frequencies of all demographies among the respondents was the proprietor/head of the small service industry which perceived itself to be a headquarters establishment.

The findings revealed that all four secretarial/clerical job categories were present in the service area and **that the titles** for these categories were generic and timely. The position of secretary (administrative secretary) was the most prevalent, for 81.6% of the respondents reported having this job category, thereby creating a subgroup of 93 organizations. The next most prevalent category was clerk/typist at 60.5%, creating a subgroup of 69 respondents. Word processing operator (correspondence secretary) followed at 25.4%, creating a subgroup of 29. Last was the stenographer category of jobs at 23.7%, creating a subgroup of 27 responding organizations. Large firms had the highest percentages of all four job categories. Also, large businesses represented the group with the highest percentage (58.3%) of respondents indicating existence of the word processing operator position, which is the newest of the four secretarial/clerical job categories examined in this study.

Regarding the other non-demographic criteria which were analyzed, the following findings were considered to be of most interest to the institution and are reported **according** to questionnaire item.

Basic Office Skills

The 33 office skills itemized in the survey instrument were ranked from highest to lowest importance, as reported by respondents. In the interpretation of mean responses, the following scale was used: 1.00 - 1.66 =required; 1.67 - 2.33 = preferred but not required; 2.34 - 3.00 = not required. The following information was among the data:

1. The required office skills for the word processing operator, according to importance, were: listening (following directions), keyboarding (typing), proofreading, formatting from typed copy, formatting from written copy, formatting from rough draft, spelling, grammar/punc-

tuation, comprehension, vocabulary, telephone communication, speech, basic writing skills.

2. The required office skills for the secretary, according to importance, were: listening (following directions), grammar/punctuation, spelling, vocabulary, telephone communication, formatting from written copy, speech, proofreading, comprehension, formatting from typed copy, keyboarding (typing), basic writing skills, formatting from rough draft, traditional filing, original composition.

3. The required office skills for the stenographer, according to importance, were: listening (following directions), formatting from written copy, spelling, telephone communication, formatting from typed copy, formatting from rough draft, vocabulary, proofreading, keyboarding (typing), traditional filing, speech, grammar/punctuation, basic writing skills, comprehension, electronic copying/duplicating.

4. The required office skills for the clerk/typist, according to importance, were: listening (following directions), keyboarding (typing), telephone communication, formatting from written copy, speech, traditional filing, formatting from typed copy, spelling, formatting from rough draft, grammar/punctuation, vocabulary, proofreading, comprehsnsion.

5. All of the most important office skills which were required in each job category were traditional skills, except electronic copying/duplicating, which was required for the stenographer.

6. The need for language arts, in general, was decidedly foremost in all four job categories, with the language art of listening (following directions) ranking first in all four job categories. All but two of the language arts were consistently reported as being required. The

two exceptions were original composition, which was reported at the preferred level for all job categories except the secretary category where it was required, and basic writing skills, which was at preferred level for the clerk/typist but required everywhere else.

7. The typewriting activities of keyboarding and formatting, most of which were required, represented the next most important cluster of activities to area employers.

8. Technical typing was scored as a preferred skill for all job categories; over 51% of employers of word processing operators required this skill, and over 45% of employers required it of their secretaries. This skill was reported as preferred but not required by 14% of the employers with these two job categories. Almost 30% of the employers of stenographers required this skill, and 33% preferred it.

9. Medical typing skill was not perceived to be important. It was not required or even preferred in any of the four job categories--by over 79% of the respondents employing the word processing operator, by 73% with the secretary category, by 85% with the stenographer category, and by 93% with the clerk/typist category.

10. Shorthand was not perceived to be important in the entry-level word processing operator and clerk/typist positions, for it was not required or even preferred by respondents. Shorthand was more important in entry-level secretary and stenographer positions, but even for these occupational categories with which shorthand skill has been traditionally identified, shorthand was not required but only preferred. Over 32% of employers of secretaries required this skill and 25% preferred it. Over 40% of employers of stenographers required this skill, and 41% preferred it. Analysis shows that shorthand was perceived to be

more important for the stenographer than for the secretary.

11. Symbol shorthand (e.g., Gregg), was still the more preferred medium over alphabet and machine shorthand (e.g., Stenotype) which were not required or even preferred.

12. Transcription via machine dictation was not required for any of the job categories, but it was preferred for word processing operators, secretaries, and stenographers. However, shorthand was a more preferred skill than machine dictation for both the secretary and the stenographer. Taking machine dictation was not perceived to be important for the clerk/typist, for it was not required or even preferred. Electronic machine dictation was not important, for it was not required or preferred in any job category at this time.

13. None of the three computation skills of business math, bookkeeping, and accounting were required in any of the four job categories, but business math was a preferred skill for all four job categories. For the secretary, though, accounting and bookkeeping were preferred; however, these skills were not perceived to be important for the word processing operator and the stenographer. Over 79% of employers of WP operators and 67% of the employers of stenographers reported that accounting was not required or even preferred. Over 62% of the employers of WP operators and 67% of the employers of stenographers required that bookkeeping was not preferred or required. Although bookkeeping was preferred for the clerk/typist, accounting was not important.

14. Skill regarding preparation of masters for duplicating via mimeograph and spirit processes was preferred for the secretary and the stenographer; however, this skill was not important for the word processing operator and the clerk/typist, for it was neither preferred or

required by 72% and 68% of employers, respectively.

15. Traditional filing was a required skill for the secretary, stenographer, and clerk/typist, and it was more important to area employers than electronic filing. Electronic filing was preferred but not required for the word processing operator and the stenographer, and it was not important for the secretary and the clerk/typist. Over 55% of employers of WP operators required this skill and 10% preferred it; 19% of employers of stenographers required this skill, and 29% preferred it. Both kinds of filing skills were preferred but not required in the word processing operator job category.

16. More nontraditional skills were preferred for the word processing operator than for any other job category. These four preferred but not required skills were computer literacy, data entry, electronic filing, and electronic copying/duplicating.

17. The stenographer position was next to the word processing operator position in need of the nontraditional skills. In addition to required electronic copying/duplicating skill, electronic filing and data entry skills were preferred.

18. Only one of the nontraditional skills which were examined--electronic copying/duplicating--was as yet required in any of the four job categories; 44% of employers of stenographers required it, and 41% preferred it. This skill was consistently at minimally the preferred level in the other three job categories, whereas traditional duplicating skills (mimeograph and spirit masters) were only preferred for the secretary and stenographer job categories and were not important for the word processing operator and clerk/typist job categories.

19. Data entry skill was not required in any of the four job

categories which were examined, but this skill was preferred in the word processing operator and stenographer job categories. Over 51% of the respondents employing word processing operators required this skill, and 10% preferred it. Over 18% of the organizations employing stenographers required this skill, and 26% preferred it. For the two other job categories, this skill was not important, for it was neither required or even preferred.

20. Computer fluency was not perceived to be important by respondents, for it was reported as neither required or even preferred for any of the four job categories.

21. Computer literacy was preferred for the word processing operator, but there was little preference anywhere else; 41% of organizations employing word processing operators required computer literacy and 21% preferred this skill.

Equipment and Related Systems

The 23 equipment and related systems itemized in the survey instrument were ranked from highest to lowest importance, as reported by the respondents. In the interpretation of mean responses, the following scale was used: 1.00 - 1.66 = required; 1.67 - 2.33 = preferred but not required; 2.34 - 3.00 = not required. The following information was among the data:

1. The equipment and related systems required for the WP operator, according to importance, were: electronic visual display (CRT) typewriter, dry copy duplicator, and electric typewriter.

2. The equipment and related systems required for the secretary, according to importance, were: electric typewriter, conventional mail,

dry copy duplicator, and traditional calculator.

3. The equipment and related systems required for the stenographer, according to importance, were: electric typewriter, dry copy duplicator, and conventional mail.

4. The equipment and related systems required for the clerk/typist, according to importance, were: conventional mail, electric typewriter, traditional calculator, and dry copy duplicator.

5. All of the most important equipment and related systems which were required for each job category, except the CRT typewriter for the word processing operator, were those that have been traditionally associated with secretarial/clerical job performance.

6. The most commonly important equipment or related system was the electric typewriter, followed by dry copy duplicators and conventional mail systems. The electric typewriter and dry copy duplicator were required for all four job categories.

7. Typewritten documents are produced most importantly on electric typewriters first, then on the IBM Executive typewriter. This order was applicable to all job categories except the word processing operator position, where the order of importance was the CRT visual display followed by the electric typewriter.

8. Usage of the IBM Executive typewriter was preferred in all four job categories, especially in the stenographer category, followed by the secretary. It appeared among the top six most important equipment/systems for the three job categories of secretary, stenographer, and clerk/typist and in each case superseded the electronic visual display (CRT) text-editing typewriter. Although the Executive was not among the top six important items in the word processing operator position, it was

nevertheless reported as required by 21% of employers and as preferred by 21%. Usage of this equipment was required by 31% and preferred by 15% of the employers of secretaries. Over 40% of employers of stenographers required it and 30% preferred it.

9. Operation of the traditional mimeograph and spirit duplicating equipment was not important, for this activity was reported by area employers as not required or even preferred in any job category, as follows: For the mimeograph--WP operator, 76%; secretary, 73%; stenographer, 63%; clerk/typist, 73%. For the spirit duplicator--WP operator, 83%; secretary, 73%; stenographer, 59%; clerk/typist, 73%.

10. More of the nontraditional equipment/systems were scored as required or preferred for the word processing operator than for any other job category. The CRT visual display text-editing typewriter was reported as required by 69% and as preferred by 7% of the employers. The data entry terminal was required by 55% and preferred by 7%. The electronic calculator was required by 35% and preferred by 35%. Usage of the "intelligent" text-editing word processor was required by 48% of these employers and preferred by 7%.

11. The only nontraditional equipment that was consistently reported by employers in all four job categories at minimally the preferred level was the electronic calculator with memory. For the word processing operator, 35% required it and 35% preferred it. For the secretary, 56% required it and 17% preferred it. For the stenographer, 41% required it and 37% preferred it. For the clerk/typist, 46% required it and 25% preferred it.

12. The stenographer was next to the word processing operator in need for usage of the nontraditional equipment. In addition to the

electronic calculator which was consistently preferred in all job categories, usage of the data entry terminal was at the preferred level, with 22% of employers requiring it and 22% preferring it.

13. Except for the electronic calculator which was commonly preferred in all job categories, the nontraditional equipment/systems were not important in the secretary and clerk/typist job categories where they were neither required or preferred.

14. Although usage of high-tech distance telecommunications as a way of disseminating information was not important at this time to the majority of local businesses who neither required or preferred it, survey findings did reinforce the literature regarding the start of acceptability of these systems. Over 24% of employers preferred or required word processing operators to use electronic mail, and 30% of the employers of stenographers preferred or required them to use electronic mail and teleconferencing.

Typewriting and Shorthand Rate Requirements

1. The ranges representing the most frequently reported typing rates for each job category at entry level were: 60 or more words a minute by 52% of respondents employing word processing operators, 60+ wam by 48% of respondents employing secretaries, 50-59 wam by 52% of respondents employing stenographers, and 50-59 wam by 35% of respondents employing clerk/typists.

2. For those companies who did expect some shorthand skill in any one of the four job categories, the range representing the most frequently reported writing rates at entry level for each job category was 80-99 words a minute. The respondents who employ the following person-

nel reported this rate according to these categories: secretary, 24%; stenographer, 45%; word processing operator, 28%; clerk/typist, 9%. The response percentages regarding writing rate for secretaries were about equally divided between need for writing rate of some sort and no need. The highest response group reporting some writing rate was relative to the stenographer job category where 74% of employers reported need of some rate as opposed to no need of rate. However, the highest rates were expected by employers of secretaries, where 16% reported the highest option of 100 words or more words a minute.

Current Status of Word Processing

1. At this time, employers who preferred that hirees have competency in usage of WP equipment, or even an understanding of word processing, were still in the minority.

2. Of those who did prefer that hirees have training in equipment usage, more respondents (23%) preferred that experience to be on any kind rather than on a specific brand of WP equipment. Training on a specific brand was preferred by 9% of the respondents.

3. In the absence of hands-on experience of some sort, 46% of the respondents preferred the hirees to have at least an understanding of word processing.

Trends for Five-Year Projection of Use and Application of WP Equipment

1. Currently 18% of all respondents indicated that they already were using word processing equipment, and 24% indicated that they had intention of including word processing equipment within the next five years. Therefore, 42% of the respondents will be using word processing equipment within the next five years.

2. A greater percentage (50%) **of the subgroup of** large companies reported current usage of word processing equipment than any other subgroup. Also, a greater percentage (42%) reported plans to include WP equipment in the next five years than did the smaller organization subgroups.

3. A greater perentage (41%) of the medium-size subgroup than of any other size group reported that word processing equipment would not be added within the next five years.

4. Of the 27 respondents who already had some word processing equipment in their organizations, the highest percentages of respondents indicated increase in all the uses and applications of word processing equipment which were examined. In each case except off-site in-service training, the majority of respondents projected increase and/or introduction of these activities.

5. The activity with the highest frequency of response (85.2%) was "volume of typing tasks processed on W/P equipment," which was projected to increase.

6. Of the 27 respondents who already had word processing equipment, over 66% projected increase in on-site in-service training, whereas only 37% forecast that training will be off-site. Off-site in-service training was the only item which had any response (7.4%) in the decrease option.

Conclusions

The following conclusions are based on the general thrust of the findings of this study which, in turn, were interpreted in terms of percentage or in terms of mean response, with suitability being the determiner. The conclusions and consequent recommendations pertaining to need of selected office skills and equipment usage were based on the following interpretation scale of mean response: 1.00 - 1.66 = definite need; 1.67 - 2.33 = some need; 2.34 - 3.00 = low to no need. The following conclusions were considered to be among the most pertinent:

1. Since almost a fifth of responding companies already are using WP equipment, it appears that word processing and office automation systems approaches have made inroads but are not yet widespread in the service area of the institution. However, this level of current existence, in addition to the following circumstances, suggest that the movement towards the automated office systems is in progress in the service area and is one to be recognized in any curriculum planning by the institution: a) the projected addition in the next five years of WP equipment, which was reported by almost one-fourth of the responding organizations; and b) the five-year projected trend of sizable increase in use and applications of word processing equipment by respondents who already have facilities.

2. Since over 90% of the large company demography reported being presently and futuristically involved with word processing equipment/systems, these large organizations are more extensively involved with these systems than smaller companies are and may be considered a vanguard to the fully automated office. However, since the small organization is most representative of the demography of the service area, the implication is that this group more nearly reveals the general status of word processing in the local community--another factor to be recognized in institutional strategies.

3. Even though currently the involvement of less than 10% of the

small company **demography** with WP equipment is quite minimal, the projected increase in WP facilities by 23% of this group is notable. This factor--plus the sizable current existence and projected future expansion in the next five years among the other medium and large organizations--lead to the conclusion that the institution is keeping pace with the state of the art in the community. That is, the institution is providing commensurate facilities and curriculum for the preparation of prospective hirees and is adopting a receptive posture for further development. The institution therefore has been correct in the pursuit of allocation of resources for appropriate word processing learning facilities.

4. Even though trends revealed projected expansion of word processing activities in the community, at this time employers who expect that a hiree has competency in usage of WP equipment are still in the minority. However, more of the employers who do prefer that hirees have training in equipment usage prefer that experience to be on any kind rather than on a specific brand of WP equipment. Therefore, the institution's strategy of having a room equipped with the same brand of word processing terminals (CRTs) is reasonable, upon assumption that there is transfer regarding psychomotor and cognitive behaviors from one brand of text-editing hardware to another.

5. Because no effort was made in this study to determine the number of job units in each job classification in responding organizations, no conclusive statement can be made in this regard. The question that was examined in the survey was determination of existence and relevance in the community of ths four job categories of word processing operator (sometimes referred to as correspondence secretary), secretary

(sometimes referred to as administrative secretary), stenographer, and clerk/typist.

6. Since over 80% of eligible respondents reported inclusion of the secretary job category and over 60% reported inclusion of the clerk/typist job category in the service area, the inclusion of the existing corresponding instructional programs within the curriculum of the Department of Office Administration is verified and relevant. Since just over 25% reported inclusion of the word processing operator category and just under 25% reported inclusion of the stenographer position, these two job categories are much less prevalent in the service area.

7. The word processing operator position, the newest of the job categories, is not yet widespread in the service area. However, the notable frequency of occurrence (one-fourth of responding organizations) plus the forward trends indicated by the literature and by the survey regarding projected expansion of word processing activities suggest that the number of businesses to include this job category may well increase, thereby increasing the employment potential. Most of the employment opportunities for word processing operators are and will be in large companies, followed by medium-size and then small companies. The inclusion of the existing Word Processing degree and certificate programs in the departmental curriculum is relevant.

8. Continuation of the stenographer job category, which is the least prevalent of the four job categories in the service area--in its historical format, including title--may decline. For the time being, there is still justification for the institution to include the Stenographer certificate program, but some revision may be considered.

9. The present organization within the Department of Office Admin-

istration of instructional programs for the four job categories should allow for future contraction and/or expansion of emphases on varying learning experiences which are pertinent. Also, since response indicated that the four job titles are generic and timely, the curriculum is verified in retaining these titles for the present time. Large firms are more likely to include all four secretarial/clerical job categories in their organizations than are smaller firms.

10. Since the secretary job category is currently the most frequently occurring of all the job categories which were examined, prospective hirees are most likely to find employment in the secretary occupational classification moreso than in the other three classifications which were examined. The next most likely employment opportunity exists in the clerk/typist job classification, followed by word processing operator and stenographer.

11. The three traditional job categories of secretary, stenographer, and clerk/typist are changing complexion slightly, for companies have begun to introduce "new ways" in the clerical conduct of their business. Some historical performance patterns are changing and some nontraditional approaches are being incorporated. Of the three traditional job categories, the stenographer category appears to be undergoing the change most noticeably.

12. Currently of all four job categories, the word processing operator, closely followed by the stenographer, needs the nontraditional skills and equipment associated with word processing and automated office systems approaches moreso than do the secretary and the clerk/typist.

13. Since all but one of the most important office skills required

by the respondents in each job category are traditional skills which have been historically associated with secretarial/clerical job performance, these skills still remain more important to the local employer than the newer nontraditional skills which have become associated with word processing and office automation systems.

14. Since all but one of the six most important office equipment and related systems used in the job categories of secretary, stenographer, and clerk/typist are those that have been traditionally associated with secretarial/clerical job performance, presently these traditional systems are still more important to the employer for these three job categories than the newer nontraditional systems.

15. Even though only one of the nontraditional office skills examined in this study (electronic copying/duplicating for the stenographer) was observed as definitely needed in the secretarial/clerical cluster of jobs, some need of some other nontraditional skills was observed for all job categories. Therefore, plans should be explored to include more learning activities involving the nontraditional skills, particularly electronic copying/duplicating, electronic filing, data entry skills, and computer literacy, for which some need, at least, was indicated, especially in word processing operator and stenographer job categories.

16. Currently, in the word processing operator position, more need was evidenced than in the other job categories for the usage of some of the nontraditional equipment/systems--i.e., definite need to use a visual display CRT and some need to use the data entry terminal and the electronic calculator and the "intelligent" word processor. Therefore, the Department's approach of requiring a two-course sequence--Word Processing Concepts and Word Processing Applications--for students in

the Word Processing degree program is justified, for these courses emphasize the use of the visual display text-editing typewriter (CRT). However, evidently expansion of activities into some of the other related office automation systems for these students is implied.

17. Since almost 50% of the respondents indicated an expectation of at least an understanding of word processing by hirees, the departmental curriculum is verified also in the requirement of the Word Processing Concepts course for all secretarial/clerical students.

18. Of all the skills which were examined, the definite need for language arts, in general, is foremost in importance among an overwhelming majority of area employers for all four job categories. Therefore, in order to coincide with the top level of importance evidenced in the analysis for all four job categories, the departmental curriculum needs to provide secretarial/clerical students with expanded learning experiences in the language arts, including the communications skills.

19. Since keyboarding and formatting activities in the typewriting cluster represent the next most important competencies for all four job categories, much of the curriculum is verified in its emphasis on these learning experiences. However, the current competencies for typewriting, with at least 50 words a minute at the end of the typewriting sequence of study, coincide with community expectations for the clerk/typist but do not coincide with expectations for the word processing operator and the secretary, which were reported to be 60+ words a minute most frequently. Also, there is discrepancy in the minimum 40-word-a-minute competency specified in the existing Stenographer certificate program.

20. Discrepancies, other than rate, regarding typewriting learning experiences within the departmental instructional approaches are

notable, as follows:

a) There is still some need for technical typing in the offices of the community. Some need, at least, exists in all four job categories, especially for word processing operators, followed by secretaries and then stenographers by 66%, 59%, and 63% of area employers, respectively. This implication is particularly pertinent because of the concentration of research laboratories and other technically oriented businesses in the service area. Therefore, the current de-emphasis, to the point of possible exclusion, of this learning experience in the departmental curriculum needs to be reconsidered; otherwise, the institution is not addressing the needs of the community.

b) Because area employers indicated some need to operate the IBM Executive typewriter in all four job categories, especially stenographer followed by secretary, desirability of this learning experience is indicated. Therefore the current de-emphasis, to the point of possible exclusion, of this learning experience in the departmental curriculum needs to be reconsidered, for otherwise the institution is not addressing the needs of the community.

c) Since low to no need was reported for medical typing in any of the four job categories by 73% to 93% of area employers, it appears that there is low to no demand in the service area for office workers with this specialized training. Therefore, the current emphasis in the curriculum on medical typing activities by inclusion of medical specialty programs with the two-course sequence in medical transcription needs to be reconsidered.

21. Since analysis of results regarding the computation skills of business math, bookkeeping, and accounting largely coincide with the present curriculum in the instructional programs for secretary and stenographer, these curricula are verified. However, since low to no need of accounting or bookkeeping was indicated for the word processing operator, the curriculum in this program does not coincide.

22. Although some need was evidenced for skill in preparation of masters for the traditional spirit and mimeograph duplicating processes for the secretary and the stenographer, there was however low to no need in any job category for operation of the mimeograph and spirit duplicating equipment. As a result, departmental instructional approaches to these activities need to be reconsidered.

23. Since definite need was shown for usage of the electric typewriter and the dry copy duplicator for all job categories, the curriculum is verified in the inclusion of learning experiences on the electric typewriter. The Department, however, does not have facilities to provide learning experiences on the dry copy duplicator.

24. Since 70% to 78% of employers in all four job categories, especially the secretary category, indicated at least some need for usage of the electronic calculator, addition of this learning experience is desirable.

25. Evidently, shorthand generally has become a less needed skill for secretarial/clerical workers in the service area.

26. Since there is low to no need of shorthand for word processing operators and clerk/typists, the departmental curriculum is correct in not requiring shorthand in the Word Processing and Clerical degree and certificate instructional programs. However, the listing of short-

hand as one of a two-option course requirement for the Word Processing degree is still more emphasis than is implied by consensus.

27. Even secretaries and stenographers can probably get some entry-level jobs locally without shorthand skill. However, since employers indicated that there is some need of this skill for secretaries and stenographers, these prospective hirees are perceived to be more employable if they are skilled in shorthand. In addition, possession of this skill is perceived by some to be indicative of potential for satisfactory job performance. For the present time, because there is still some need of shorthand skill for secretaries and stenographers by a majority of the subgroups with these job categories, the curriculum is verified in the inclusion of required shorthand training for the Secretarial Skills degree and Stenographer certificate programs.

28. The current departmental competencies of 100-120 words a minute at the end of the shorthand sequence of study exceed the requirements of the business community, which were reported to be 80-99 wam.

29. Because low to no need for any kind of machine dictation/transcription skill was indicated for the clerk/typist, the curriculum in the Clerical degree and certificate programs which do not require any transcription activity is verified.

30. Since there is some need of machine dictation for word processing operators, secretaries, and stenographers, inclusion of some learning experience in these corresponding programs is indicated. The WP degree program which includes a two-course sequence is verified. However, the learning experiences in the Secretary and Stenographer programs need to be expanded somewhat to meet the expectation of 48% of employers of secretaries and 63% of employers of stenographers who

indicated some need of this skill. This training has added benefit, for learning experiences in machine dictation/transcription also provide the opportunity for integration of the language arts of grammar/punctuation and spelling which were perceived by employers to be of utmost importance.

31. It is logical to anticipate that as word processing approaches and office automation systems become more common in the offices of the community, personnel who presently transcribe from mechanical dictation units will want to use the electronic text-editing typewriter (CRT) to transcribe the dictation because of the feasibility of incorporating revisions right onto the first draft of a document. The data of this study support this anticipation, since a majority of the respondents who already have WP equipment reported an increase or an introduction of this activity of typing tasks from dictation media processed on WP equipment. Desirability therefore is indicated for addition of these learning experiences.

32. Since some need for computer literacy was reported by over 62% of employers of word processing operators, desirability of the learning experience in the Word Processing degree program is indicated; therefore, the departmental approach of including Introduction to Computers as an optional elective in the program is verified. Since no need was indicated for any other job category, the Clerical degree and certificate programs, which do include computer learning experience, may need to be reconsidered for revision.

33. Since at least some need of data entry skill and of use of the data entry terminal was indicated by over 60% of the employers of word processing operators, desirability of inclusion of these learning

experiences in the **Word Processing** degree program is indicated.

34. Even though low to no need was evidenced regarding the usage of the electronic dictionary in the community, implications are that this system will become a greater part of the scenario in local offices in the near future. This recently developed office automation system, which is a software package that can be used in conjunction with the CRT text-editing typewriter (word processor), has already made a slight appearance on the local scene, for 7% of employers of word processing operators, 7% of employers of stenographers, 4% of employers of secretaries, and 1% of employers of clerk/typists have reported at least some need of the electronic dictionary. Because of projected increase in word processing activities in local offices, in addition to increased availability and marketing of improved packages, this software program is likely to grow in acceptance and use in the next five years. Also, because of the immediate recognition and recall feature, this software would have the added benefit of being a learning medium to reinforce spelling skills.

35. Despite the current low to no need reported by at least 63% or more of local businesses for high-tech distance communications as a way of disseminating information, in this study electronic mail (EMS) and teleconferencing did make a noteworthy showing of use in all four job categories, thus reinforcing the literature. The 30% of employers of stenographers and the 20% of employers of secretaries and the 9%-24% of employers of word processing operators and clerk/typists who reported some usage of electronic mail and teleconferencing indicates that this newest way of communicating has made inroads in the community. Even "other" systems like microwave satellite, etc., made a showing as high

as 7%. This existing level of usage and the rapidly advancing technology, in addition to the trends indicated in the survey towards office automation, lead to the expectation that in the near future telecommunications will grow to be a greater part of the scenario in local offices too.

36. Since the majority of respondents who already use WP equipment indicated an increase in on-site in-service training and only about one-third indicated an increase in off-site training, it appears that more companies prefer to do their own training rather than to send their employees to classes elsewhere.

37. One of the effects of this study should result in improving the efficacy of the institution's services to the local business/industrial community, thereby enhancing possible further collaboration between the community college and the private sector.

Summary

Trends toward automating the office, particularly through word processing approaches, have begun to change some job skills requirements for entry-level secretarial/clerical employees in the offices of the service area. However, at this time the emphasis, especially in the three traditional job categories, is still on the traditional skills and equipment/systems for processing clerical office work. The implication therefore is that the movement towards automation is an evolution rather than a revolution in the service area and that most of the office systems are changing gradually rather than radically.

Recommendations

Generally, except where stated in the conclusions, recommendations for inclusion or exclusion of any goal are based on 60% consensus. Recommendations about conclusions reached regarding office skills and use of equipment/systems are based on the following interpretation scale of mean response:

1.00 - 1.66 = definitely should be included in curriculum as a requirement

1.67 - 2.33 = should be included in the curriculum upon consideration of other factors such as consensus, the literature, or professional observation and experience

2.34 - 3.00 = should not be included in the curriculum.

In accord with the intent of the report to convey the general thrust of the findings and to report discrepancies relative to the system at the institution, the following recommendations are made:

1. The faculty of the Department of Office Administration and other responsible parties at the institution should evaluate the office skills and knowledges that have been identified in the results of this research so that informed decisions regarding the curriculum can be made.

2. Generally, the service of the institution regarding preparation of secretarial/clerical office workers for the service area may be twofold: a) to continue to serve the tradition-oriented offices which are currently the majority group and b) to keep pace with developments in the automation-oriented offices which are now in the minority but which are expected to grow in number and in degree of involvement.

3. The institution should be careful not to make changes regarding

curriculum and instructional facilities in the Office Administration programs out of an unfounded sense of urgency. Since currently the position of the Department of Office Administration regarding inclusion of word processing approoaches generally coincides with the state of the art in the community, there is time to strategize methodically on the basis of rationale.

4. Since the large corporation demography is the vanguard in the word processing or office automation movement, the institution would benefit in referring to these organizations, who have already incorporated the modern automated approaches, as role models in future curriculum planning. In the modeling process, since companies appear to prefer on-site rather than off-site in-service training, the content and approach of their training programs should be studied so that the institution may gauge its own instructional approaches.

5. Although the Word Processing degree and certificate programs should be promoted, they should not be promoted at the expense of the traditional Secretarial and Clerical programs. The obvious reason is that at this time there appear to be more opportunities for employment as traditional secretaries and clerk/typists in the offices of the local community, and student clients should be apprised of this reality.

6. The institution should continue to seek allocation of financial resources so that provision, maintenance, and updating of facilities in the Department, especially those related to the Office Automation System (Word Processing System), are ongoing.

7. Learning experiences regarding the definitely needed skill of listening, or following directions, should be emphasized and should be integrated into all departmental courses.

8. Plans should be made for addition and placement in the curriculum of learning experiences regarding the following nontraditional skills and equipment/systems for which consensus indicated some need at least:

Electronic copying/duplicating -- definite need for stenographer, but also at least some need for the three other job categories. Upon recommended acquisition of the appropriate hardware, learning experiences could be integrated into the existing Office Procedures course.

Electronic filing -- some need for word processing operator.

Data entry skills and corresponding data entry terminal -- some need for word processing operator.

Computer literacy -- some need for word processing operator.

Electronic calculator -- some need in all four job categories.

9. Learning experiences should be considered for addition to the curriculum regarding the following nontraditional systems for which consensus indicated low to no need but for which need is anticipated by the investigator:

Electronic mail and message systems (EMS) as a form of high-tech distance telecommunications. The capabilities of the present Honeywell Office Automation System should be explored with the vendor for feasibility of integrating learning experiences regarding EMS.

Electronic dictionary. Upon recommended acquisition of this software, learning experiences should be integrated into the existing Office Automation System for use in existing word processing and transcription courses.

10. Learning experiences regarding the following traditional and nontraditional equipment for which consensus indicated low to no need should be deleted from the curriculum: operation of mimeograph and spirit duplicator; and operation of electronic printed-copy text-editing typewriter.

11. Plans should be made for placement in the curriculum of learning experiences regarding the following traditional skills and equipment/systems for which need was observed:

Technical typing -- some need in all four job categories, especially for word processing operator and stenographer. These learning experiences, which have recently been de-emphasized in favor of the word processing courses, should be reconsidered.

IBM Executive typewriter -- some need in all four job categories, especially for stenographer. These learning experiences, which have recently been de-emphasized in favor of the word processing courses, should be reconsidered.

Business English -- definite need for all four job categories.

Machine transcription -- some need for secretary, word processing operator, and especially stenographer. The curriculum is verified in the Word Processing programs, but a one-semester requirement should be added to the Secretarial degree and Stenographer certificate programs.

12. Curriculum changes regarding content of the following existing courses should be considered for implementation:

a) Adjustment of competencies in typing rate in the various levels of typewriting courses so that in the final sequence the minimum competency would be increased from 50 words a minute to 55 words words a minute.

b) Inclusion of more learning experiences regarding the definitely needed communication skills in the Business Communications course, which is required of Office Administration degree students. This expansion will be possible upon the transfer of the basic English activities to the suggested Business English course which is being recommended later in this section.

c) Addition of transcription activities on the visual display CRT text-editing typewriter (Office Automation System) in the last stages of the machine transcription sequence in the Word Processing degree program.

13. The following changes in curriculum regarding additions and deletions of courses within the departmental programs should be considered:

a) Deletion of the bookkeeping or accounting requirement from the Word Processing degree program.

b) Deletion of the last course, which is presently the fourth level in the shorthand sequence, from the Secretarial degree program and from the entire curriculum. The accompanying advanced transcription course should also be dropped. This action would coincide with the tendency of the students to stop their shorthand training short of this last level.

c) Reinstatement of the three-credit Business English course, which was dropped from the curriculum in the '70s, as a requirement for all secretarial/clerical degree students and as a prerequisite for the Business Communications course.

d) Reinstatement in the curriculum of the Typewriting 4 course, which until recently had been the last sequence in the typing series, as a requirement in the Word Processing, Secretarial, and Clerical degree programs. In addition to development of typing skill which should be transferred from its temporary placement in the Office Procedures course, technical typing experiences should also be included. This course should be required of WP and Secretarial degree students and can be optional for others.

14. The following additional adjustments in total programs should be considered:

Stenographer certificate program: Business English, Machine Transcription I, and Office Procedures should be added. Also, the minimum typing rate competency stipulated for the Stenographer certificate should be raised from 40 words a minute to 50 words a minute. In addition, in the near future, the Department should examine the applicability of the title of this certificate program for relevancy, for implication is that usage of this title may be declining.

Medical Office Assistant degree program and Medical Transcription certificate program: The institution should further examine the relevancy of these specialty secretarial programs, since geographical consensus implies exclusion from the curriculum. In order to ascertain whether the institution is oversupplying the local market, an in-depth study should be made in the community to determine the employment potential for prospective medical office hirees and the extent of specialized study which is needed. If the recommended study, which would be limited to questions pertaining exclusively to the "medical" office establishments, reinforces the implications of this study that there is low to no demand for workers trained in medical typing, the Medical Office Assistant degree and certificate programs should be deleted from the curriculum at this institution. These programs could then be transferred to the inner city campus of CCAC which is in the service area of the major health centers and other major health-related establishments of the city that provide a more realistic employment potential. In so doing, the two medical transcription courses would be deleted from the curriculum. If, on the other hand, the study reveals that there is need for these workers in the local area, then the institution will have validated the curriculum in these medical specialty programs.

15. Since it appears that there will be an eventual overlapping of data and word processing tasks, there would be closer relationship between these two study areas at the institution.

16. The institution should provide released time for the faculty to be oriented regarding capabilities beyond word processing of the new Honeywell Office Automation System, e.g., telecommunicating, electronic filing, communicating word processing, and so forth.

17. The institution should strive to discourage sex stereotyping and should try to attract males into all of the secretarial/clerical programs through external public relations and internal promotion of the programs through advisement and orientation. In particular, the Clerical degree and certificate programs, which do not require transcription

activities, should be more vigorously promoted by advisers than they currently are because of the employment potential they offer. Since unemployment among blue-collar males in the Pittsburgh area is among the highest in the nation, the Office Administration programs may be suited for males who need to be retrained.

18. In order to refine the findings and conclusions of this study regarding employment potential, a subsequent investigation may be conducted in the area to determine the number of job units existing in each of the four job categories in the businesses of the service area.

19. Findings from this study may serve as a reference in the near future (next five years) for responsible parties at the institution in making decisions regarding curriculum adjustment.

20. The institution may initiate a feasibility study to explore inclusion of microcomputers as instructional media in the beginning typewriting classes. Implied in this study would be exploration of allocation of financial resources for acquisition of the hardware.

21. To assure that the Department of Office Administration of Boyce Campus will produce program and/or course completers with marketable skills, the departmental curricula should continue to be reexamined and modified on the basis of

a) assessment of employers' requirements with a repeat survey within three to five years so that the institution may be updated regarding changes and trends in the business community

b) follow-up of success of graduates of the past five years, especially those in Word Processing and Medical programs, to learn the opinions regarding overall effectiveness in preparing them for employment.

22. A general concern is the realization that because technology will be continually changing and because local office systems will be more and more automated, all the processes involved in this present wave of change will probably have to be repeated in the inevitable next wave, including the particular concern of allocation of financial resources for updated hardware and software.

23. The information presented in this study may be generalized to a similar demography, i.e., a suburban area of a large industrial city. Although this study was carried out specifically for Boyce Campus of Community College of Allegheny County, the information may be of interest to business educators at other institutions, particularly other community colleges, in review of their own curricula; and it may provide a guide for similar studies to be carried out elsewhere.

24. A summary of results of this study will be disseminated to the Administration at Boyce Campus; to the faculty of the Department of Office Administration; to the Executive Director of the Monroeville Area Chamber of Commerce, a major college umbrella; to the Bureau of Vocational Education of the Commonwealth of Pennsylvania from whom funding is being received; and to participants in the survey who so requested.

BIBLIOGRAPHY

Arnston, L. J. Word/information processing provides productivity to communication. SRA Business Education News, Spring 1983, p. 7.

Atkinson, J. Teaching typewriting with microcomputers. Business Education Forum, 1983, 37 (7), 3.

Baumgardner, M. Above and beyond the skills. Business Educaton Forum, 1981, 36 (2), 10.

Beaumont, L. R. Word processing through the looking glass. The Balance Sheet, 1981, 63, 65-68.

Behling, R. P., & Brooks, L. Microcomputer selection needs careful evaluation. Business Education Forum, 1981, 36, (3), 31.

The blue collar fades. The Pittsburgh Press, December 5, 1982, p. A16.

Bowman, J. P., & Branchaw, B. P. The brave new world of automated communication. SRA Business Education News, Spring 1983, p. 1.

Boyce Campus. Update. October 27, 1982, 6 (8).

Brittain, K. Needs assessment survey for data processing curriculum. Business Eduction Forum, 1981, 36 (1), 18.

Bushen, R., Benson, A., & Laundroche, R. High-tech programs for future office workers. Business Education Forum, 1983, 37 (7), 5.

Byron, C. Now the office of tomorrow. Time, November 17, 1980, pp. 81-32.

Casady, M. Selecting WP equipment. Business Education Forum, 1981, 36 (2), 32.

Cecil, P. B. Word processing in the modern office (2d ed.). Menlo Park: The Benjamin Commings Publishing Company, 1980.

Commonwealth of Pennsylvania, Dept. of Labor and Industry. Pittsburgh SMSA Occupational Trends and Outlook 1976 and Projected 1982. Fall 1980, pp. 36-38.

Daggett, W. R. Business education--a look 10 years into the future. Paper presented at the convention of the Tri-State Business Education Association, Pittsburgh, October 1981.

Dartnell Corporation. *Glossary of word processing terms*. Chicago: Author, 1977.

Dennee, J. M. Importance and frequency of entry-level competencies as perceived by word processing supervisors, correspondence and administrative secretaries, and word processing educators in Wisconsin (Doctoral dissertation, Utah State University, 1981). *Dissertation Abstracts International*, 1981, 42/04-A. (University Microfilm No. 81-21374)

Driska, R. S. Information/WP opportunities in New York City. *The Balance Sheet*, 1983, *64*, 181-184.

Ellis, B. H. Incorporating word processing into the curriculum. *Business Education World*, 1982, *62* (3), 18-19.

Eskey, K. Young Americans lacking skills survey finds. *The Pittsburgh Press*, March 9, 1983, p. B-6.

Ettinger, B. A study of the requirements and business training procedures for word processing personnel with implications for word processing curriculum development in two-year postsecondary institutions (Doctoral disseration, New York University, 1980). *Dissertation Abstracts International*, 1981, 42/01-A. (University Microfilm No. 81-10693)

Ettinger, B. Are their language skills showing? *SRA Business Education News*, Spring 1983, p. 2.

Fielden, R. *Writing a word processing grant proposal*. Willow Grove, Pa.: International Word Processing Association.

Fisher, S. L. Editor's note. *SRA Business Education News*, Spring 1983, p. 1.

Gallo, A. J. *Interpreting educational research*. Dubuque: Wm. C. Brown, 1975.

General business potpourri. *Business Education World*, 1979, *60* (5), 31.

Glisdorf, J., & Rader, M. H. Preparing for the technological revolution in business communication. *Business Education Forum*, 1982, *37* (1), 24-25.

Harris, R. Product improvement process. *BNAC Communicator*, Spring 1982, p. 7.

Henderson, J. T. *Programming planning with surveys in occupational education*. Washington, D. C.: American Association of Junior Colleges, 1970. (ERIC Document Reproduction Service No. ED 045 087)

Hill, J. E., & Kerber, A. *Models, methods & analytical education research*. Detroit: Wayne State University Press, 1967.

Holmquist, D. Business education: some controversial questions. Business Education Forum, 1983, 37 (5), 4.

Hosler, M. Gregg research report. Business Education World, 1983 63 (2), 23.

Jorgensen, C. D., & Campbell, M. E. Business classroom and laboratory equipment. Business Education Forum, 1982, 36 (4), 29.

Kaufman, R., & English, F. Needs assessment concept and application. Englewood Cliffs: Educational Technology Publications, 1979.

Kaylor, D. Shorthand and technology team up. Business Education World, 1983, 63 (3), 27.

Kennedy, M., Hotz, L., & Bowman, L. Towns on the line. The Pittsburgh Press, December 3, 1982, p. A17.

Kish, L. Survey sampling. New York: John Wiley, 1967.

Kutie, R. C. An analysis of the job dimensions of word processing secretaries, administrative support secretaries, and traditional secretaries and the correlation of these job dimensions with job satisfaction factors (Doctoral dissertation, Kent State University, 1977). Dissertation Abstracts International, 1978, 38, 5202-A. (University Microfilms No. 78-00350)

Lambrecht, J. L. A historical development of office education. Business education--yesterday, today, & tomorrow--NBEA Yearbook 14. Reston: National Business Education Assoc., 1976.

Lauth, L. Marketing success in the 80s. Paper presented at meeting of meeting of faculty and staff of Community College of Allegheny County, Pittsburgh, November 1981.

London, J., & Ewing, J. B. Study guide for societal factors affecting education. Ft. Lauderdale: Nova University, 1980.

Lippitt, G. L. Managing effectively with limited resources. BNAC Communicator, Spring 1982, p. 11.

Maxwell, G. W., & O'Hare, J. K. New and emerging entry-level office and distributive occupations and their effect on business education curriculum. Sacramento, Calif.: San Jose State University and Calif. State Department of Education, 1979. (ERIC Document Reproduction Service No. ED 199 526)

Mayhew, L. B. Study guide for higher education context of the community college. Ft. Lauderdale: Nova University, 1979.

Meggison, P. F. A word processing curriculum for the two-year college. Business Education Forum, 1983, 37 (6) 9.

Mehallis M. Employer needs assessment. In Needs assessment for the eighties. Paper presented at Ninth Annual Summer Institute of Center for Higher Education of Nova University, Ft. Lauderdale, June 1981.

Meroney, J. W. Word processing--what skills should an entry-level applicant have? Century 21 Reporter, Fall 1979, pp. 5-6.

Miller, J. M. The impact of microcomputers on secretarial education. Business Education Forum, 1983, 37 (7), 7.

Modlin, G. Meeting the needs of business through competency-based education. Business Education World, 1981, 62 (1), 3.

Monroeville Area Chamber of Commerce. Business and membership directory 1982.

Moody, P. G. Identification of entry-level competencies and locus of training for word processing secretaries in South Carolina (Doctoral dissertation, University of South Carolina, 1978). Dissertation Abstracts International, 1979, 39/11-A, 6478-A. (University Microfilms No. 79-11845)

Murranka, P. A. Task inventories and position analysis for correspondence secretaries, administrative secretaries, and supervisors in word processing (Doctoral dissertation, Utah State University, 1979). Dissertation Abstracts International, 1979, 40, 628-A. (University Microfilms No. 79-17974)

New York Statewide Business Education Review Committee. Final report: looking towards the future. New York: City University of New York and University of the State of New York, 1980.

Nie, N., Hull, C. H., Jenkins, J. G., Steinbrenner, K., & Bent, D. SPSS statistical package for the social sciences (2d ed.), New York: McGraw-Hill, 1975.

Nixon, J. More reasons for shorthand. Business Education World, 1982, 63 (2), 7.

O'Sullivan, M. B. Word processing in the office of the future: comparison of forecasts of businesspersons and educators (Doctoral dissertation, University of Illinois, 1977). Dissertation Abstracts International, 1978, 38, 6091-A. (University Microfilms No. 78-04105)

Ott, L. H. S. Curricula recommendations for word processing by eastern Washington businesses (Doctoral dissertation, Washington State University, 1979). Dissertation Abstracts International, 1979, 40/04-A, 2030-A. (University Microfilms No. 79-23507)

Owens, B. Business education implications of office automation. The Balance Sheet, 1982, 64 (1), 13-14.

Parten, M. Surveys, polls, and samples: practical procedures. New York: Cooper Square, 1966.

Peterson, R., & Donin, D. Gregg research report. Business Education World, 1981, 62 (1), 27.

Pibal, D. C. Integrating word processing skills, terminology, concepts into existing curriculums. Business Education Forum, 1980, 34 (7) 10-11.

Pierce, W. P. Education for employment. Business education--yesterday, today, & tomorrow--NBEA Yearbook 14. Reston: National Business Education Assoc., 1976.

Policies Commission for Business and Economic Education. Information processing in business education. Business Education Forum, 1982, 37 (1), 12.

Powell, M. E. The modern automated word processing systems--its implications for changes in the curriculum for business and office automation (Doctoral dissertation, University of Montana, 1975). Dissertation Abstracts International, 1974, 36, 2582-A. (University Microfilms No. 75-25217)

Professional news. Business Education World, 1983, 63 (3), 14.

Rankin, E. High tech jobs slow to compute. The Pittsburgh Press. May 8, 1983, p. B1.

Rohrer, S. K. Current status of word processing in businesses in a large industrial city with implications for business education curricula change (Doctoral dissertation, University of Pittsburgh, 1978). Dissertation Abstracts International, 1979, 42/01-A. (University Microfilms No. 79-02723)

Roueche, J. E., & Mayhew, L. B. Study guide for curriculum development in higher education. Ft. Lauderdale: Nova University, 1979.

Rubin, A. S. Typing and the automated office--is accuracy still important? Business Education World, 1981, 62 (2), 31.

Rudnitsky, A. Los Angeles County office survey (Research Study Number 80-9). Los Angeles, Calif.: Los Angeles City College, July 1980. (ERIC Document Reproduction Service No. ED 190 191)

Scriven, J. D., Holley, J. L., Wagoner, K. P., & Brown, R. D. Summary report of national study of word processing installations in selected business organizations. St. Peter, MN: Delta Pi Epsilon, 1981.

Secretarial forecast. Business Education World, 1982, 62 (4), 29.

Simcoe, A. L. Word processing instruction: should business education be proactive or reactive? Business Education Forum, 1980, 34 (6), 11-12.

Stitt, W. L. Office technology demands curriculum reevaluation. Business Education Forum, 1982, 37 (3) 11.

Stocker, R., Neal, W. G., Lutz, C. M., & Fadala, N. Microcomputer applications in business education programs. Business Education Forum, 1983, 37 (6), 30;32.

Stoddard, L. T. NBEA career education committee: a projection. Business Education Forum, 1980, 34 (8) 7.

Stubbe, C. What is computer literacy? Business Education World, 1982, 63 (1), 4.

Thompson, A. Survey shows occupation winners, losers. The Pittsburgh Press, August 1, 1982, p. B6.

Tomlan, D. A review of the programs in the Department of Secretarial and Office Sciences to determine how to incorporate word processing into departmental offerings. Unpublished manuscript, Nova University, 1980.

Tomlan, D. A study to identify and develop additions to the Department of Office Administration curriculum in order to complete the package of options for prospective office employees. Unpublished manuscript, Nova University, 1981.

Tomlan D. Development of a promotional brochure to assist in recruitment for new Office Administration curricula at Boyce Campus of Community College of Allegheny County. Unpublished manuscript, Nova University, 1981.

Tomlan, D. Office occupations/word processing. Pittsburgh, Pa.: Community College of Allegheny County, Boyce Campus. Grant from Commonwealth of Pennsylvania, Department of Education, Bureau of Vocational Education, 1982.

Turner, H. J. Word processing's challenge to business educators. Business Education Forum, 1981, 36 (3), 24-25.

Wagoner, K. P. Word processing career opportunities. Muncie, Indiana: Ball State University, 1977. (ERIC Document Reproduction Service No. ED 174 288)

Wagoner, K. Emerging trends in WP education. Words, October-November 1980, pp. 22; 24-25.

Wallace, J. Text-editing equipment: alternatives in teaching WP. Business Education Forum, 1983, 37 (7), 10-11.

Weisberg, H. E., & Bowen, B. D. An introduction to survey research and data analysis. San Francisco: W. H. Freeman, 1977.

Will, M., & Dake, D. Concepts in word processing: the challenge of change. Boston: Allyn and Bacon, 1982.

Withey, S. B. Survey research methods: Encyclopedia of Educational Research. New York: MacMillan, 1960.

Wood, M. W. A call to action. The Balance Sheet, 1980, 62 (1), 12-14.

Wylie, W. H. The Pittsburgh story: exciting 4th chapter unfolds. The Pittsburgh Press, August 29, 1982, p. B9.

Appendix A

Survey Instrument and Cover Letters

BOYCE CAMPUS, Community College of Allegheny County

Questionnaire--Skills Currently Needed by Entry-Level Secretarial/Clerical Employees

SECTION 1--Organizational Data

Name of Organization and address ____________________

____________________ Tel. No. __________

Type of business (check ✓ one): ( ) Production ( ) Retail ( ) Service

Type of organization (check ✓ one): ( ) Headquarters ( ) Branch

Name of respondent ____________________ Position (check ✓ one):
( ) Proprietor or Head of organiz.
( ) Personnel manager
( ) Office manager or Head of dept.
( ) Secretary or Assistant
( ) Other; Specify: __________

Number of employees in organization (check ✓ one):
( ) Small (20 or fewer employees)
( ) Medium (21-300 employees)
( ) Large (over 300 employees)

Please respond to each of the following items according to the current actual situation in your organization's offices. Keep in mind that Sections 2, 3, and 4 contain characteristics of entry-level employees. Not all of the job competencies associated with secretarial/clerical personnel are listed here; rather the focus is on the major manipulative skills, computation skills, and language arts. For Sections 2 and 3, please circle one of the following codes for each characteristic in each of the four job categories. Circle "4" if there is no such position in your organization.

Code: 1 = Required; 2 = Preferred but not required; 3 = Not required; 4 = Not applicable (no such position)

SECTION 2--Basic Office Skills — Circle 1, 2, 3, or 4. Use pencil.

		** W/P Operator	*Secretary	Stenographer	Clerk/Typist
1.	Keyboarding (typing)	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
	Formatting (typing documents):				
2.	from typewritten copy	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
3.	from handwritten copy	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
4.	from rough draft copy	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
	Specialized typing:				
5.	Technical (statistical)	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
6.	Medical	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
7.	Legal	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
8.	Phototypesetting	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
9.	Computer fluency (ability to write and analyze computer programs)	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
10.	Computer literacy (ability to manipulate a computer with a pre-established program to perform desired tasks)	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
11.	Data entry (data processing or inputting data through CRT)	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
	Computation:				
12.	Business math	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
13.	Bookkeeping	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
14.	Accounting	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
	Filing/retrieving (records maintenance):				
15.	Traditional (hard-copy documents)	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
16.	Electronic (generating entries to store and retrieve data through CRT or other W/P and D/P terminals)	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
	Copying and duplicating (image processing):				
17.	Traditional (preparation of masters via Mimeo and "Ditto")	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
18.	Electronic (telecopiers, Facsimile, etc.)	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
	Dictating and transcribing:				
	Taking and transcribing dictation:				
19.	via symbol shorthand (e.g., Gregg)	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
20.	via alphabet shorthand (e.g., Speedwriting)	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
21.	via machine shorthand (e.g., Stenotype)	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
22.	via machine recorded messages (e.g., Dictaphone)	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
23.	Giving dictation	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4

** Word Processing Operator sometimes referred to as Correspondence Secretary
* Secretary sometimes referred to as Administrative Secretary

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(Section 2 cont'd)

	** W/P Operator	*Secretary	Stenographer	Clerk/Typist
Language arts:				
Writing:				
24. Grammar, punctuation	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
25. Spelling	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
26. Basic writing skills (clarity)	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
27. Original composition	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
Reading:				
28. Comprehension	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
29. Vocabulary	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
30. Proofreading	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
Speaking:				
31. Speech (ability to transmit information in a clear, concise manner)	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
32. Telephone communication (voice processing)	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
33. Listening (following directions)	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
SECTION 3--Equipment and Related Systems -- Circle 1, 2, 3, or 4. Use pencil.				
Input/Output:				
Typewriter:				
1. Manual	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
2. Electric	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
3. IBM Executive	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
Electronic (text-word processing):				
4. Visual display (CRT)	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
5. Printed copy (e.g., Mag. Card)	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
6. "Intelligent" word processor (computer-linked)	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
Machine dictation equipment:				
7. Traditional (Dictaphone, etc.) for dictation-stored message to be played back and typed	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
8. Electronic, an "intelligent" terminal (computer-linked) which accepts a recorded message for later transcription	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
9. Data entry terminal (e.g., CRT visual display)	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
10. Desk-top computer (microcomputer)	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
11. Electronic dictionary (e.g., Bell Laboratories' UNIX)	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
12. OCR (Optical Character Reader), an optical scanner which can read typed material into a computer or word processor	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
13. COM (Computer Output Micrographics) which creates microforms which can be created directly from electronic data without the paper step	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
Calculator/adding machine:				
14. Traditional	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
15. Electronic ten-key with memory	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
Communications/Distribution:				
16. Conventional mailing of correspondence	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
High-tech distance telecommunications, including:				
17. Electronic Mail and Message Systems (EMS)	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
18. Teleconferencing	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
19. Other (e.g., Microwave/Satellite facilities, etc.)	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
Reprographics Equipment:				
Traditional:				
20. Mimeograph	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
21. Spirit (e.g., "Ditto")	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
22. Dry copy (e.g., Xerox)	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
23. Intelligent copiers and duplicators which reproduce directly from electronic data	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4

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SECTION 4--Typewriting and Shorthand Requirements

Please record the code representing the appropriate rate for each position category. Focus on entry-level hirees. Record the code for n/a (not applicable) if there is no such position in your organization.

1. Typewriting Rates--Code: 1 = 60+ wam 2 = 50-59 wam 3 = 40-49 wam 4 = under 40 wam 5 = no need 6 = n/a

____ Word Processing Operator
____ Secretary
____ Stenographer
____ Clerk/Typist

2. Shorthand Rates--Code: 1 = 100+ wam 2 = 80-99 wam 3 = 60-79 wam 4 = no need 5 = n/a

____ Word Processing Operator
____ Secretary
____ Stenographer
____ Clerk/Typist

SECTION 5--Current Status of Word Processing — Check "yes" or "no"

	Yes	No
1. Do you have a separate (centralized) word processing department or center which serves principals (originators of documents) in your organization?	( )	( )
2. Do you look for a prospective hiree to be trained to use a specific brand of W/P equipment?	( )	( )
OR		
3. Do you rather look for prospective hirees to have hands-on experience on any kind of W/P equipment with the expectation that the hirees will adapt themselves to the brand you use?	( )	( )
OR		
4. Do you rather look for a hiree to just understand word processing concepts generally?	( )	( )
OR		
5. Is it unnecessary for the hiree to have any understanding of word processing?	( )	( )

SECTION 6--Trends for a 5-Year Projection of the Use and Application of W/P Equipment

If your organization does not currently have W/P equipment, simply answer Statement 1 by recording (a) or (b) in the column to the right and do not answer the remaining questions in the section.

1. W/P equipment has not yet been introduced (a) but some kind of W/P equipment will be included in the next five years, (b) and W/P equipment probably will not be included within the next five years. ____

- - - - - - - - - -

If your organization already has some W/P equipment, skip Item 1 and complete the remaining statements by circling one of the following codes which most nearly represents your perception of the projected inclusion of word processing approaches. Use pencil.

1 = probably will increase
2 = probably will not change
3 = probably will decrease
4 = probably will be introduced
5 = is undetermined, for facilities are currently nonexistent

2. Number of W/P equipped stations 1 2 3 4 5
3. Volume of typing tasks processed on W/P equipment 1 2 3 4 5
4. Volume of typing tasks from dictation media processed on W/P equipment 1 2 3 4 5
5. Present W/P equipment capabilities to interface with mainframe computer and/or telecommunicating equipment 1 2 3 4 5
6. Number of employed W/P operators (all levels) 1 2 3 4 5
7. On-site in-service training involving operation of W/P equipment 1 2 3 4 5
8. Off-site in-service training involving operation of W/P equipment 1 2 3 4 5

Please send a summary of the findings of this study. ( ) Yes ( ) No

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COMMUNITY COLLEGE OF ALLEGHENY COUNTY
Boyce Campus 595 Beatty Road, Monroeville, PA 15146 412-327-1327 or 412-371-8651
CCAC

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PRESIDENT
Dr. Laurence V. Lauth

December 10, 1982

Dear Member of the Greater Monroeville Area Chamber of Commerce:

Enclosed is a questionnaire which we at Boyce Campus of Community College of Allegheny County hope you will complete and return to us. As you know, the contemporary office scene is changing and the automated office is evolving. The Department of Office Administration at Boyce therefore is now particularly concerned with meaningfully incorporating word processing approaches into the curriculum. It would be most helpful for us to verify which skills are most needed by prospective employees whom we are training for entry-level secretarial/clerical occupations that may be affected by word processing. We want to know what our partners in the business world say regarding the status of these skills. This input from you is vital and will be deeply appreciated by the Boyce Campus community. Rhea J. Black, President of the Chamber, endorses the study.

If this questionnaire (or parts of it) can be completed more realistically by someone else in your organization, would you please forward this form to that person or persons. Completion of the questionnaire will take about 10-20 minutes. Should you wish to receive a summary of the findings of this study, just check the statement at the end of the questionnaire.

We look forward to your response within ten days (by December 23). The completed form may be returned in the enclosed stamped envelope to Ms. D. Tomlan, Professor of Office Administration, who is directing the survey. Please call her at 327-1327 or 371-8651 for any further explanation or information.

Season's Greetings,

James L Evanko

James Evanko, Executive Dean
and Member of the Chamber

dt

cc: Rhea J. Black, Greater Monroeville Area Chamber of Commerce

P.S. For purposes of this survey, word processing is defined as a modern communication system designed to cut rising clerical/secretarial costs by increasing productivity through the use of machine transcribers and electronic text-editing typewriters and copiers which speed the flow of paperwork.

ALLEGHENY CAMPUS
[illegible]

BOYCE CAMPUS
595 Beatty Road
Monroeville, PA 15146

COLLEGE CENTER NORTH
1130 Perry Highway
Pittsburgh, PA 15237

SOUTH CAMPUS
1750 Clairton Road
West Mifflin, PA 15122

COLLEGE OFFICE
610 Smithfield Street
Pittsburgh, PA 15222

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CCAC COMMUNITY COLLEGE OF ALLEGHENY COUNTY

BOYCE CAMPUS

January 5, 1983

Dear Member of the Greater Monroeville Area Chamber of Commerce:

Here is another copy of the same questionnaire and cover letter which we sent you just before Christmas. The initial request may have been lost in the rush of the holiday mail; furthermore, this may be a more convenient time to complete the questionnaire.

We at Boyce Campus are surveying the local business community to find out which skills entry-level secretarial/clerical hirees should have. Please know that anonymity of respondents will be protected, for findings of this survey will be reported generally in terms of numbers and percentages. If the questions are not applicable to your business situation, simply circling the topmost "4" in each section or writing "n/a" will be adequate.

Your completion of the questionnaire is important to us, even though you mark the entire questionnaire "n/a." A return by January 17 will be appreciated. Please overlook this letter if you have already returned the completed questionnaire. Thank you very much for your help.

Sincerely yours,

Dolores Tomlan

Dolores Tomlan, Professor
Office Administration

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Enclosures

BOYCE CAMPUS 595 BEATTY ROAD, MONROEVILLE, PA. 15146 412/371-8651

Appendix B

Validation of Instrument--

Report, Participants, and Cover letters

*Report of Questionnaire Items Which Did not Receive a Perfect Mean Score of "5" in the Validation of the Instrument

Section No.	Item No.	Statement	Mean Score
2	8	Phototypesetting	4.6
2	9	Computer fluency	4.4
2	17	Traditional copying/duplicating (preparation of masters for mimeo and spirit duplicating)	4.8
2	20	Taking and transcribing dictation via alphabet shorthand (e.g., Speedwriting)	4.6
2	23	Giving dictation	4.4
3	3	IBM Executive typewriter	4.6
3	20	Mimeograph duplicator	4.6
3	21	Spirit duplicator	4.6

* Scale of pertinence:
5 = very high
4 = high
3 = moderate
2 = low
1 = none

Committee for Validation of Instrument

Dr. Fred Bartok, Assistant Dean, Administrative Sciences, Boyce Campus, Community College of Allegheny County, Monroeville, Pennsylvania

Mr. Robert Fisher, Associate Professor of Data Processing, Boyce Campus, Community College of Allegheny County

Mr. Alfred Galilei, Professor of Office Administration, Boyce Campus, Community College of Allegheny County

Mrs. Violet Ludwig, Professor of Office Administration, Boyce Campus, Community College of Allegheny County

Ms. Betty Lou Luketich, Manager of Administration, Energy and Advanced Technology Group, Westinghouse Electric Corporation, Pittsburgh, Pennsylvania

Field Test Participants

Mrs. Rhea J. Black, formerly President of the Greater Monroeville Area Chamber of Commerce and currently Executive Director, Economic Development Assistance of Monroeville, Pennsylvania

Ms. Norma Knopp, Manager of Statistical Typing Department, Basic Technology, Monroeville, Pennsylvania

Ms. Betty Lou Luketich, Manager of Administration, Energy and Advanced Technology Group, Westinghouse Electric Corporation, Pittsburgh, Pennsylvania

Mrs. Rosemary Surgent, Administrative Assistant to the President, United Technologies Center, Pittsburgh, Pennsylvania

Ms. Kay Swanson, Manager, Information and Communication Center, Westinghouse Electric Corporation, Pittsburgh, Pennsylvania

November 12, 1982

Dear Colleague

Attached is a copy of the questionnaire which will be used for survey of the local business/industrial community to determine the technical skills and knowledge needed by secretarial/clerical students for employment at entry-level. As you know, the survey results will help us verify the relevance of our programs and identify possible adjustments.

Please review each item on the questionnaire for content validity. Should the item be included? Record the appropriate code in the right margin alongside each entry according to the following scale:

5 = very high pertinence 4 = high pertinence 3 = moderate pertinence
2 = low pertinence 1 = no pertinence

I would appreciate your returning the validated instrument by Friday, November 19, 1982.

Thank you

Dolores

Enclosure

P.S. If you discover any inconsistencies in the content (wording, etc.), please mark those areas on the questionnaire.

COMMUNITY COLLEGE OF ALLEGHENY COUNTY
Boyce Campus 595 Beatty Road, Monroeville, PA 15146 412-327-1327 or 412-371-8651

CCAC

December 3, 1982

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W. L. Lonrentz
Daniel Marguriet
Elmer A. McClung
Norwood A. McDaniel
Bishop John B. McDowell

PRESIDENT
Dr. Laurence V. Lauth

Dear Colleague

Attached is a copy of the questionnaire which will be used for survey of a representative sample of the business community which Boyce Campus serves. The survey will seek to determine the technical skills and knowledges, including the word processing approaches, needed by secretarial/clerical students for employment at entry-level. The findings will help us to verify the relevance of our programs in the Department of Office Administration.

As you will recall, such a survey was discussed at the Department Advisory Committee meeting on April 15, 1982. At that time, you approved the outlined format of the questionnaire for the proposed survey, and we have since had intermittent conversations regarding the status of the survey. The questionnaire now has been developed and has been validated by members of the Department faculty as well as others; it therefore is ready to be tried out by you. Thank you for agreeing to participate in the trial run.

Following are some directions:

1. Respond to each item in the questionnaire by answering each item according to the directions on the questionnaire.
2. Take note of the time you take to complete the questionnaire and record the number of minutes in the upper right corner of the top sheet.
3. As you work through the questionnaire, place a marker by any item which is unclear or questioned by you.
4. When you finish taking the test and after you have recorded the time, go back to the markers and write in any correction or comment regarding any possible inconsistencies which you encountered in the format or in the wording of the questionnaire.

I would appreciate having the return by Monday or Tuesday. I can come by your office either day to pick it up. If you have any questions in the meantime, please call me at 461-4020. Thank you very much for your cooperation and support.

Sincerely

Dolores Tomlan, Professor
Office Administration

Encl.
cc: R. Black, Monroeville C. of C.

ALLEGHENY CAMPUS
[illegible]
Pittsburgh PA 15212

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Appendix C

Summary Tables of Frequency Distributions for Questionnaire Sections 2 and 3 Regarding Usage of Office Skills and Equipment

(Nonresponse to an item is indicated where there is a difference between the number of reported responses and the number of possible responses.)

Responses Regarding Need of Basic Office Skills in Relation to Entry-Level Secretarial/Clerical Employees

Section 2--Item No. and Statement	W/P Operator (N = 29)						Secretary (N = 93)						Stenographer (N = 27)						Clerk/Typist (N = 69)					
	Required		Preferred but not Required		Not Required or N/A		Required		Preferred but not Required		Not Required or N/A		Required		Preferred but not Required		Not Required or N/A		Required		Preferred but not Required		Not Required or N/A	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
1. Keyboarding (typing)	27	93.1	--	--	2	6.9	75	80.6	5	5.4	10	10.8	18	66.7	3	11.1	4	14.8	45	65.2	12	17.4	6	8.7
2. Formatting from typed copy	23	79.3	2	6.9	3	10.3	72	77.4	5	5.4	9	9.7	20	74.1	3	11.1	3	11.1	42	60.9	12	17.4	11	15.9
3. Formatting from written copy	23	79.3	2	6.9	3	10.3	76	81.7	5	5.4	6	6.5	21	77.8	2	7.4	3	11.1	42	60.9	16	23.2	7	10.1
4. Formatting from rough draft	23	79.3	2	6.9	3	10.3	68	73.1	9	9.7	10	10.8	20	74.1	2	7.4	4	14.8	39	56.5	16	23.2	10	14.5
5. Technical typing	15	51.7	4	13.8	9	31.0	42	45.2	13	14.0	30	32.3	8	29.6	9	33.3	9	33.3	15	21.7	18	26.1	31	44.9
6. Medical typing	3	10.3	1	3.4	23	79.3	12	12.9	3	3.2	68	73.1	1	3.7	2	7.4	23	85.2	1	1.4	1	1.4	64	92.8
7. Legal typing	5	17.2	3	10.3	20	69.0	10	10.8	9	9.7	66	71.0	2	7.4	5	18.5	19	70.4	3	4.3	8	11.6	55	79.7
8. Phototypesetting	1	3.4	1	3.4	26	89.7	2	2.2	3	3.2	83	89.2	--	--	1	3.7	25	92.6	--	--	4	5.8	62	89.9
9. Computer fluency	3	10.3	5	17.2	21	72.4	2	2.2	8	8.6	79	84.9	--	--	5	18.5	21	77.8	--	--	1	1.4	65	94.2
10. Computer literacy	12	41.4	6	20.7	11	37.9	16	17.2	8	8.6	62	66.7	5	18.5	2	7.4	18	66.7	7	10.1	8	11.6	52	75.4
11. Data entry	15	51.7	3	10.3	10	34.5	14	15.1	14	15.1	61	65.6	5	18.5	7	25.9	13	48.1	9	13.0	11	15.9	48	69.6
12. Business math	9	31.0	10	34.5	10	34.5	38	40.9	23	24.7	26	28.0	7	25.9	11	40.7	8	29.6	19	27.5	21	30.4	28	40.6
13. Bookkeeping	3	10.3	7	24.1	18	62.1	35	37.6	25	26.9	30	32.3	1	3.7	7	25.9	18	66.7	14	20.3	18	26.1	35	50.7
14. Accounting	3	10.3	2	6.9	23	79.3	26	28.0	19	20.4	44	47.3	2	7.4	4	22.2	18	66.7	8	11.6	18	26.1	41	59.4
15. Traditional filing	14	48.3	3	10.3	11	37.9	71	76.3	7	7.5	12	12.9	18	66.7	4	14.8	4	14.8	46	66.7	9	13.0	12	17.4
16. Electronic filing	16	55.2	3	10.3	9	31.0	15	16.1	15	16.1	57	61.3	5	18.5	8	29.4	13	48.1	6	8.7	10	14.5	52	75.4
17. Traditional duplicating (spirit, mimeo masters)	5	17.2	1	3.4	21	72.4	25	26.9	10	10.8	54	58.1	10	37.0	5	18.5	11	40.7	16	23.2	7	10.1	44	63.[illegible]
18. Electronic duplicating	10	34.5	6	20.7	11	37.9	39	41.9	17	18.3	33	35.5	12	44.4	11	40.7	3	11.1	25	36.2	11	15.9	31	44.9
19. Symbol shorthand	3	10.3	4	13.8	20	69.0	30	32.3	23	24.7	36	38.7	11	40.7	11	40.7	4	14.8	4	5.8	12	17.4	50	72.5
20. Alphabet shorthand	1	3.4	3	10.3	24	82.8	9	9.7	17	18.3	62	66.7	5	18.5	7	25.9	14	51.9	1	1.4	8	11.6	58	84.1
21. Machine shorthand	1	3.4	2	6.9	25	86.2	7	7.5	8	8.6	72	77.4	5	18.5	4	14.8	17	63.0	--	--	6	8.7	60	87.0
22. Machine dictation	7	24.1	6	20.7	15	51.7	23	24.7	22	23.7	43	46.2	6	22.2	11	40.7	9	33.3	6	8.7	9	13.0	52	75.4
23. Giving dictation	--	--	2	6.9	26	89.7	6	6.5	11	11.8	71	76.3	1	3.7	2	7.4	23	85.2	--	--	4	5.8	63	91.3
24. Grammar, punctuation	21	72.4	3	10.3	3	10.3	78	83.9	9	9.7	4	4.3	18	62.1	5	17.2	5	17.2	38	55.1	18	26.1	10	14.5
25. Spelling	22	75.9	2	6.9	3	10.3	78	83.9	9	9.7	4	4.3	20	74.1	4	14.8	2	7.4	41	59.4	16	23.2	10	14.5
26. Basic writing skills	15	51.7	6	20.7	6	20.7	68	73.1	18	19.4	5	5.4	14	51.9	9	33.3	23	11.1	29	42.0	25	36.2	13	18.8
27. Original composition	10	34.5	6	20.7	11	37.9	49	52.7	26	28.0	16	17.2	8	29.6	11	40.7	7	25.9	20	29.0	23	33.3	24	34.8
28. Comprehension	18	62.1	7	24.1	2	6.9	74	79.6	12	12.9	5	5.4	14	51.9	8	29.6	4	14.8	35	50.7	21	30.4	11	15.9
29. Vocabulary	18	62.1	6	22.7	3	10.3	77	82.8	11	11.8	3	3.2	17	63.0	8	29.6	1	3.7	37	53.6	21	30.4	9	13.0
30. Proofreading	24	82.8	1	3.4	2	6.9	75	80.6	9	9.7	6	6.5	18	66.7	6	22.2	2	7.4	41	59.4	13	18.8	13	18.8
31. Speech	15	51.7	7	24.1	5	17.2	76	81.7	12	12.9	3	3.2	16	59.3	8	29.6	2	7.4	43	62.3	16	23.2	8	11.6
32. Telephone communication	17	58.6	7	24.1	3	10.3	78	83.9	9	9.7	4	4.3	20	74.1	4	14.8	2	7.4	48	69.6	12	17.4	7	10.1
33. Listening	26	89.7	1	3.4	—	--	87	93.5	2	2.2	2	2.2	24	88.9	2	7.4	--	--	61	88.4	5	7.2	1	1.4

Responses Regarding Need for Operation of Equipment and Related Systems in Relation to Entry-Level Secretarial/Clerical Employees

Section 3--Item No. and Statement	W/P Operator (N = 29)						Secretary (N = 93)						Stenographer (N = 27)						Clerk/Typist (N = 69)					
	Required		Preferred but not Required		Not Required or N/A		Required		Preferred but not Required		Not Required or N/A		Required		Preferred but not Required		Not Required or N/A		Required		Preferred but not Required		Not Required or N/A	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
1. Manual typewriter	1	3.4	2	6.9	22	75.9	21	22.6	3	3.2	58	62.4	5	18.5	3	11.1	14	51.9	12	17.4	11	15.9	37	53.6
2. Electric typewriter	17	58.6	6	20.7	3	10.3	75	80.6	6	6.5	9	9.7	18	66.7	5	18.5	1	3.7	42	60.9	15	21.7	9	13.0
3. IBM Executive typewriter	6	20.7	6	20.7	13	44.8	29	31.2	14	15.1	39	41.9	11	40.7	8	29.6	4	14.8	14	20.3	20	29.0	29	42.0
4. Electronic Visual display CRT	20	69.0	2	6.9	5	17.2	16	17.2	17	18.3	54	58.1	4	14.8	8	29.6	13	48.1	5	7.2	11	15.9	51	73.9
5. Printed copy text-editor	6	20.7	3	10.3	18	62.1	3	3.2	11	11.8	71	76.3	1	3.7	7	25.9	17	63.0	--	--	7	10.1	60	87.0
6. "Intelligent" word processor	14	48.3	2	6.9	11	37.9	8	8.6	14	15.1	66	71.0	2	7.4	7	25.9	16	59.3	2	2.9	5	7.2	60	87.0
7. Traditional machine dictation	7	24.1	6	20.7	14	48.3	25	26.9	21	22.6	44	47.3	9	33.3	8	29.6	9	33.3	7	10.1	7	10.1	52	75.4
8. Electronic machine dictation equipment	4	13.8	2	6.9	20	69.0	3	3.2	12	12.9	76	81.7	2	7.4	7	25.9	17	63.0	1	1.4	3	4.3	61	88.4
9. Data entry terminal	16	55.2	2	6.9	8	27.6	18	19.4	16	17.2	56	60.2	6	22.2	6	22.2	14	51.9	6	8.7	13	18.8	49	71.0
10. Desk-top computer	4	13.8	7	24.1	14	48.3	5	5.4	16	17.2	69	74.2	2	7.4	5	18.5	19	70.4	2	2.9	4	5.8	62	89.9
11. Electronic dictionary	1	3.4	1	3.4	25	86.2	2	2.1	2	2.1	87	92.6	--	--	2	7.4	24	88.9	1	1.4	--	--	66	95.7
12. OCR (Optical Character Reader)	3	10.3	2	6.9	22	75.9	1	1.1	7	7.5	82	88.2	--	--	4	14.8	22	81.5	--	--	2	2.9	65	94.2
13. Computer Output Micrographics	2	6.9	1	3.4	24	82.8	2	2.2	5	5.4	82	88.2	1	3.7	3	11.1	22	81.5	1	1.4	1	1.4	66	95.7
14. Traditional calculator	10	34.5	5	17.2	11	37.9	53	57.0	17	18.3	18	19.4	9	33.3	10	37.0	6	22.2	40	58.0	11	15.9	15	21.7
15. Electronic calculator with memory	10	34.5	10	34.5	7	24.1	52	55.9	14	17.2	23	24.7	11	40.7	10	37.0	5	18.5	32	46.4	17	24.6	19	27.5
16. Conventional Mail	13	44.8	5	17.2	9	31.0	69	74.2	15	16.1	6	6.5	18	66.7	6	22.2	2	7.4	45	65.2	13	18.8	8	11.6
17. Electronic mail	4	13.8	3	10.3	20	69.0	11	11.8	7	7.5	72	77.4	5	18.5	3	11.1	18	66.7	5	7.2	1	1.4	61	88.4
18. Teleconferencing	2	6.9	2	6.9	22	75.9	9	9.7	9	9.7	71	76.3	2	7.4	6	22.2	17	63.0	3	4.3	4	5.8	59	85.5
19. Other high-tech distance telecommunications	--	--	1	3.4	26	89.7	2	2.2	4	4.3	83	89.2	--	--	2	7.4	24	88.9	1	1.4	--	--	65	94.2
20. Mimeograph	2	6.9	2	6.9	22	75.9	16	17.2	6	6.5	68	73.1	2	7.4	6	22.2	17	63.0	5	7.2	9	13.1	50	72.5
21. Spirit duplicator	--	--	2	6.9	24	82.8	13	14.0	9	9.7	68	73.1	2	7.4	7	25.9	16	59.3	5	7.2	9	13.1	50	72.5
22. Dry copy duplicator	19	65.5	4	13.8	4	13-8	61	65.6	11	11.8	18	19.4	18	66.7	6	22.2	1	3.7	36	52.2	16	23.2	12	17.4
23. "Intelligent" copiier/duplic.	5	17.2	1	3.4	21	72.4	11	12.0	5	5.4	72	78.3	6	22.2	5	18.5	15	55.6	5	53.0	7	34.6	53	76.8

VITA

The author was born and raised in Pittsburgh, Pennsylvania. She received the Bachelor of Science and the Master of Education degrees at the University of Pittsburgh, where she majored in business education and minored in English, French, and Russian. She holds the Certified Professional Secretary certificate which is awarded by the Institute for Certifying Secretaries.

After employment as secretary and administrative assistant, she joined the ranks of professional educators in Pennsylvania and California. Roles in education have been as teacher, chairperson, and counselor at the secondary and adult education levels and as faculty and chairperson at the community college.

Previous activities include presentations at in-service teacher institutes for the Los Angeles Unified School District; committee participation in the Los Angeles section of California Business Education Association; and CPS Committee directorship in the Pittsburgh Chapter of Professional Secretaries International. Among current organizational affiliations are National Business Education Association; International Society for Business Education; and Zeta Chapter of Theta Alpha Delta, a California-based national honorary and professional fraternity for women in business education.

Currently the author is Professor of Office Administration at Boyce Campus of Community College of Allegheny County in Monroeville, Pa.

MARP SIGNATURE PAGE

I certify that I have read and am willing to sponsor this Major Applied Research Project submitted by Dolores M. Tomlan. In my opinion it conforms to acceptable standards and is fully adequate in scope and quality as a Major Applied Research Project for the degree of Doctor of Education at Nova University.

7-15-83
(date)

George F. Aker
MARP Advisor

I certify that I have read this Major Applied Research Project and in my opinion it conforms to acceptable standards for a Major Applied Research Project for the degree of Doctor of Education at Nova University.

7/26/83
(date)

Peter K. Mills
Local Committee Member

This Major Applied Research Project was submitted to the Central Staff of the Center for Higher Education of Nova University and is acceptable as partial fulfillment of the requirements for the degree of Doctor of Education.

8-3-83
(date)

George M. Barton
Central Staff Committee Member

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